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United States
Department of
Agriculture

**Soil
Conservation
Service**

Spokane,
Washington

# Water Supply Outlook for Washington

## as of FEBRUARY 1, 1984

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University of Illinois
at Urbana-Champaign

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1in most states. There are about 1900 snow courses in Western United States and In the Columbia Basin in Brltish Columbia. Networks of automatic snow water equivalent and related data sensing devlces, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil molsture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, Including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"


## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agrlcultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE | ADDRESS |
|---|---|
| Alaska | Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504 |
| Arizona | Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025 |
| Colorado (N. Mex.) | P.O. Box 17107, Denver, Colorado 80217 |
| Idaho | Room 345, 304 N. 8th St., Boise, Idaho 83702 |
| Montana | P.O. Box 98, Bozeman, Montana 59715 |
| Nevada | P.O. Box 4850, Reno, Nevada 89505 |
| Oregon | 1220 S. W. Third Ave., Portland, Oregon 97204 |
| Utah | 4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147 |
| Washington | 360 U.S. Court House, Spokane, Washington 99201 |
| Wyoming | P.O. Box 2440, Casper, Wyoming 82601 |

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

# WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS

ISSUED BY

PETER C. MYERS
Chief
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

RELEASED BY

LYNN A. BROWN
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

FORECASTS BY

SOIL CONSERVATION SERVICE
WATER SUPPLY FORECASTING STAFF, WNTC
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REPORT PREPARED BY

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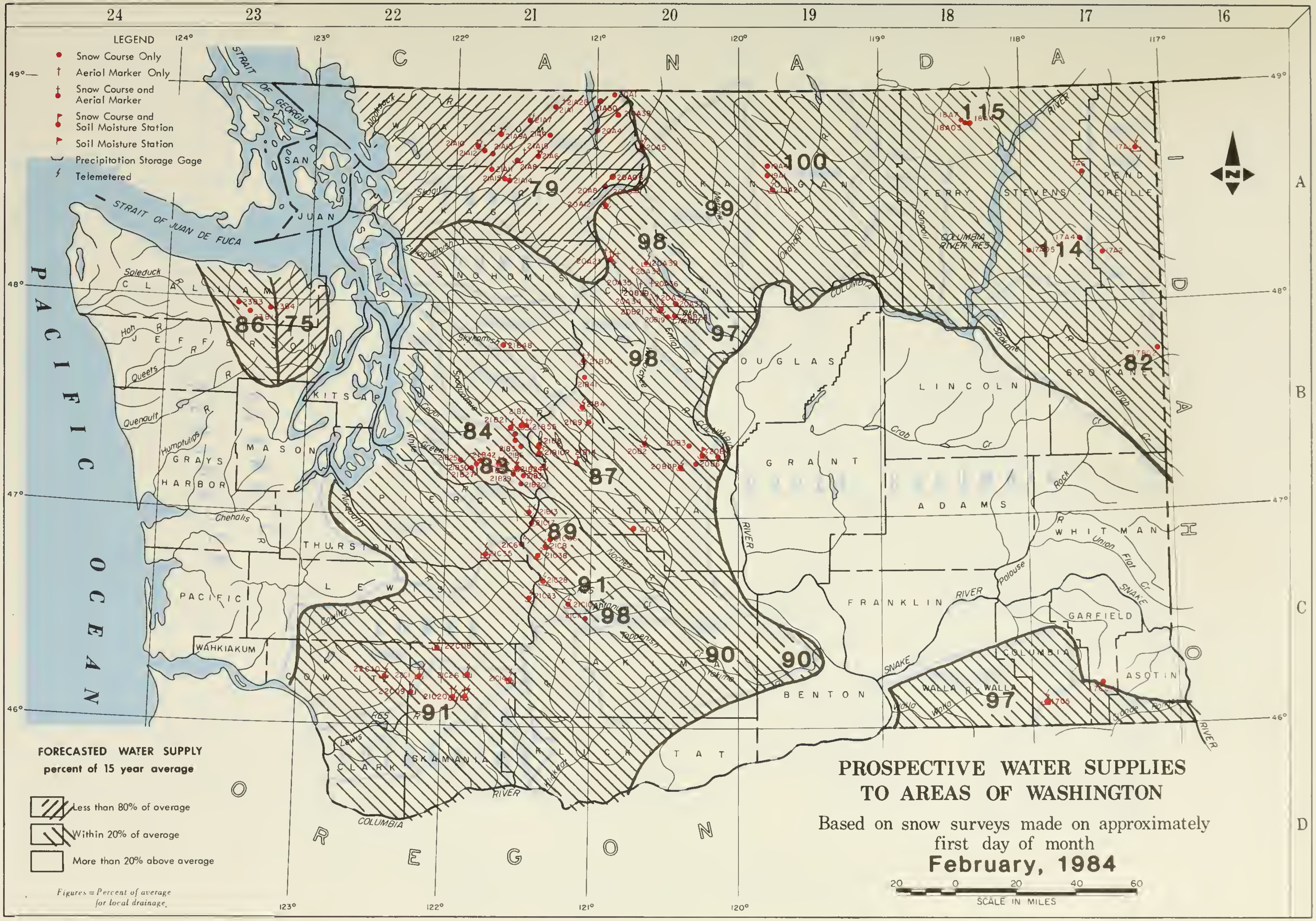
PROSPECTIVE WATER SUPPLIES
TO AREAS OF WASHINGTON
Based on snow surveys made on approximately
first day of month
February, 1984
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage.
SCALE IN MILES
CANADA
IDAHO
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
115
114
82
100
99
98
97
79
86
75
84
88
87
89
91
90

# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **UPPER COLUMBIA DRAINAGE** | | | | | |
| *Pend Oreille River* | | | | | |
| Boyer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| *Kettle River* | | | | | |
| Summit G. S. | 18A7 | 20 | 39N | 35E | 4600 |
| Butte Creek | 18A3 | 28 | 39N | 35E | 4070 |
| Goat Creek | 18A4 | 26 | 39N | 35E | 3595 |
| *Spokane River* | | | | | |
| Rogged Ridge | 17B02 | 12 | 27N | 45E | 3333 |
| *Colville River* | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mountain | 17A5 | 26 | 31N | 38E | 4990 |
| Chewelah | 17A4 | 11 | 32N | 41E | 4925 |
| *Okonogon River* | | | | | |
| Mutton Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Mutton Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salmon Meadows | 19A2SP | 33 | 37N | 24E | 4500 |
| *Methow River* | | | | | |
| Harts Poss | 20A5SP | 7 | 37N | 18E | 6500 |
| *Chelan Lake Basin* | | | | | |
| Lyman Lake | 20A23SP | 18 | 31N | 16E | 5900 |
| Pork Creek Ridge | 20A12SP | 18 | 34N | 16E | 4600 |
| Rainy Poss | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirror Lake | 20A39 | 30 | 31N | 18E | 5600 |
| *Entiot River* | | | | | |
| Brief | 20819 | 34 | 28N | 19E | 1600 |
| Entiot Meadows | 20A33a | 28 | 31N | 17E | 4540 |
| Entiot River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 18E | 6510 |
| Pope Ridge | 20820 | 22 | 29N | 18E | 3540 |
| Pope Ridge Snow Pillow | 20824SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32o | 34 | 30N | 18E | 6725 |
| Shady Poss | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20821o | 10 | 28N | 18E | 4900 |
| *Wenotchee River* | | | | | |
| Berne-Mill Creek (New) | 21841SP | 13 | 26N | 14E | 3240 |
| Blewett Poss No. 2 | 2082SP | 35 | 22N | 17E | 4270 |
| Stevens Poss | 2181SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| *Squilchuck Creek* | | | | | |
| Beehive Springs | 2083 | 12 | 21N | 19E | 4400 |
| *Stemilt Creek* | | | | | |
| Stemilt Slide | 20B6 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 20B7SP | 30 | 21N | 20E | 4400 |
| *Yakima River* | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 21B4SP | 28 | 24N | 14E | 3371 |
| Green Lake | 21C10SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20B11SP | 29 | 21N | 19E | 5385 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Morse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 2188P | 13 | 21N | 11E | 2450 |
| White Poss (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **LOWER COLUMBIA DRAINAGE** | | | | | |
| *Asotin Creek* | | | | | |
| Spruce Springs | 17C4 | 9 | 8N | 40E | 5700 |
| *Touchet River* | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| *Lewis River* | | | | | |
| June Lake | 22C09SP | 26 | 8N | 5E | 3200 |
| Lone Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadow | 21C20SP | 16 | 8N | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| *Cowlitz River* | | | | | |
| Cayuse Poss | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Potato Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyon | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C08SP | 9 | 10N | 6E | 3280 |
| **PUGET SOUND DRAINAGE** | | | | | |
| *Nisqually River* | | | | | |
| Paradise Park (New) | 21C35SP | 13 | 15N | 8E | 5500 |
| *White River* | | | | | |
| Corral Poss | 21813SP | 30 | 18N | 11E | 6000 |
| *Green River* | | | | | |
| Airstrip | 21824P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21825 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21842SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21827 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21828 | 12 | 20N | 8E | 2100 |
| Lester Creek | 21829 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21850 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21B31 | 5 | 19N | 11E | 4700 |
| Stampede Poss | 21810SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21830 | 18 | 19N | 11E | 4100 |
| *Cedar River* | | | | | |
| City Cabin | 21B3 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21821P | 30 | 22N | 10E | 3300 |
| *Snoqualmie River* | | | | | |
| Alpine Meadow | 21848 | 31 | 27N | 9E | 3500 |
| Ollollie Meadows | 2182P | 19 | 22N | 11E | 3625 |
| Ollollie Meadows East | 21B55SP | 20 | 22N | 11E | 3700 |
| *Skagit River* | | | | | |
| Beaver Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Poss | 21A1 | 9 | 39N | 12E | 3680 |
| Brown Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A38 | 8 | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| *Baker River* | | | | | |
| Dock Butte | 21A11A | 8 | 36N | 8E | 3800 |
| Easy Poss | 21A7A | 19 | 39N | 11E | 5200 |
| Josper Poss | 21A6A | 17 | 38N | 11E | 5400 |
| Morten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadow | 21A10AP | 18 | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |
| **OLYMPIC PENINSULA** | | | | | |
| *Dungeness River* | | | | | |
| Deer Park | 23B4 | 1 | 28N | 5W | 5200 |
| *Elwho River* | | | | | |
| Hurricone | 23B3 | 36 | 29N | 7W | 4500 |
| Cox Volley | 23B14 | 31 | 29N | 6W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Marker |
| 21A7M | Snow Course And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

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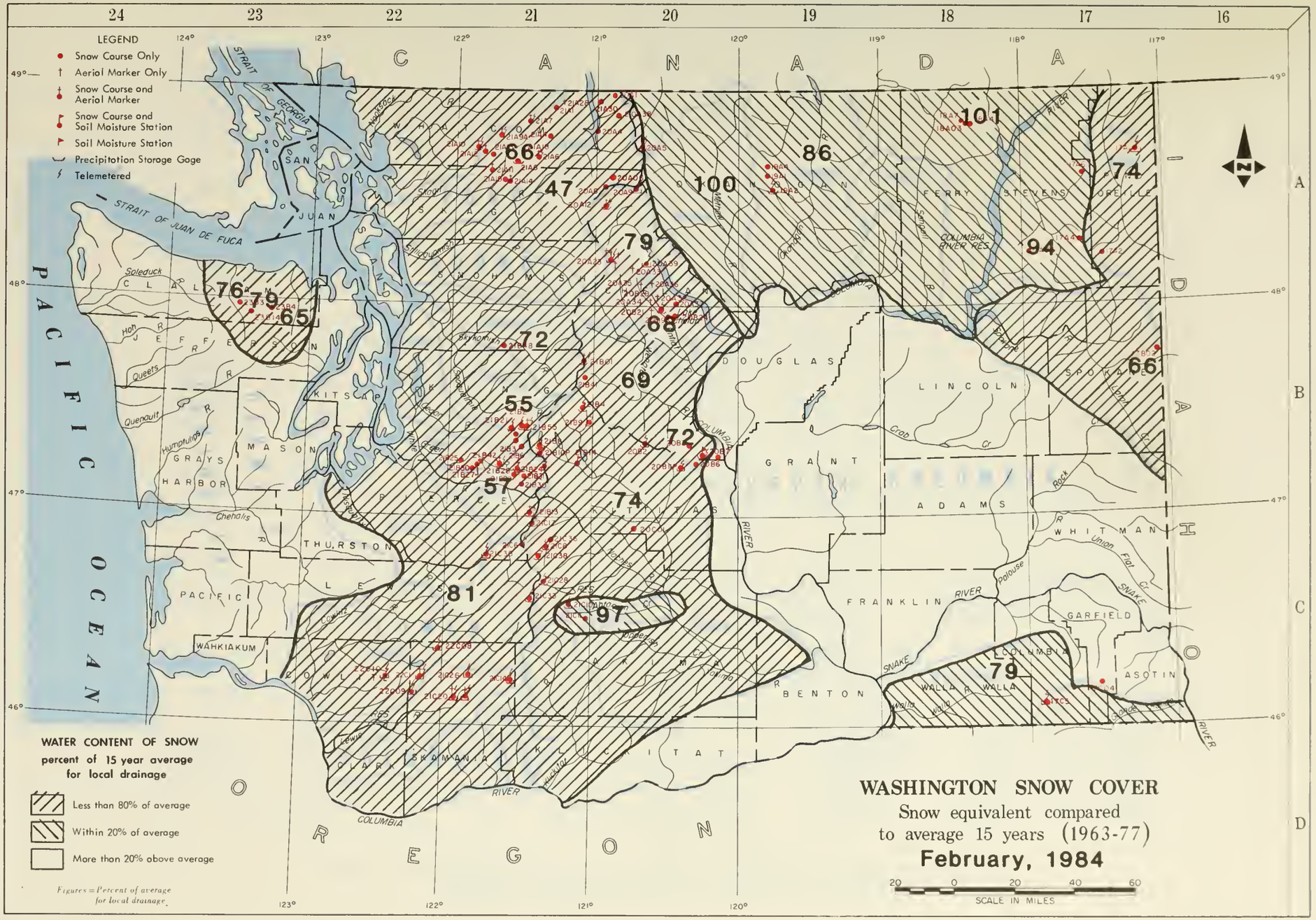


# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

## UPPER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Pend Oreille River** | | | | | |
| Bayer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| **Kettle River** | | | | | |
| Summit G. S. | 18A7 | 20 | 39N | 35E | 4600 |
| Butte Creek | 18A3 | 28 | 39N | 35E | 4070 |
| Goat Creek | 18A4 | 26 | 39N | 35E | 3595 |
| **Spokane River** | | | | | |
| Ragged Ridge | 17802 | 12 | 27N | 45E | 3333 |
| **Calville River** | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mountain | 17A5 | 26 | 31N | 38E | 4990 |
| Chewelah | 17A4 | 11 | 32N | 41E | 4925 |
| **Okanogan River** | | | | | |
| Muttan Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Muttan Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salmon Meadows | 19A2 SP | 33 | 37N | 24E | 4500 |
| **Methaw River** | | | | | |
| Harts Pass | 20A5SP | 7 | 37N | 1BE | 6500 |
| **Chelan Lake Basin** | | | | | |
| Lyman Lake | 20A23SP | 18 | 31N | 16E | 5900 |
| Park Creek Ridge | 20A12SP | 1B | 34N | 16E | 4600 |
| Rainy Pass | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirrar Lake | 20A39 | 30 | 31N | 18E | 5600 |
| **Entiat River** | | | | | |
| Brief | 20B19 | 34 | 2BN | 19E | 1600 |
| Entiat Meadows | 20A33a | 28 | 31N | 17E | 4540 |
| Entiat River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 18E | 6510 |
| Pope Ridge | 20B20 | 22 | 29N | 18E | 3540 |
| Pope Ridge Snow Pillow | 20B24SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32a | 34 | 30N | 18E | 6725 |
| Shady Pass | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20B21a | 10 | 28N | 18E | 4900 |
| **Wenatchee River** | | | | | |
| Berne-Mill Creek (New) | 21B41SP | 13 | 26N | 14E | 3240 |
| Blewett Pass No. 2 | 20B2 SP | 35 | 22N | 17E | 4270 |
| Stevens Pass | 21B1SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| **Squilchuck Creek** | | | | | |
| Beehive Springs | 20B3 | 12 | 21N | 19E | 4400 |
| **Stemilt Creek** | | | | | |
| Stemilt Slide | 2086 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 20B7SP | 30 | 21N | 20E | 4400 |
| **Yakima River** | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 2184SP | 28 | 24N | 14E | 3371 |
| Green Lake | 21C10 SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20B11 SP | 29 | 21N | 19E | 53B5 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Morse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 21BBP | 13 | 21N | 11E | 2450 |
| White Pass (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

## LOWER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Asotin Creek** | | | | | |
| Spruce Springs | 17C4 | 9 | BN | 40E | 5700 |
| **Touchet River** | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| **Lewis River** | | | | | |
| June Lake | 22C09SP | 26 | BN | 5E | 3200 |
| Lone Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadow | 21C20SP | 16 | BN | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| **Cowlitz River** | | | | | |
| Cayuse Pass | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Patato Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyon | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C0BSP | 9 | 10N | 6E | 32B0 |

## PUGET SOUND DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Nisqually River** | | | | | |
| Paradise Park (New) | 21C35 SP | 13 | 15N | 8E | 5500 |
| **White River** | | | | | |
| Carral Pass | 21B13 SP | 30 | 1BN | 11E | 6000 |
| **Green River** | | | | | |
| Airstrip | 21B24P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21B25 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21B42SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21B27 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21B2B | 12 | 20N | 8E | 2100 |
| Lester Creek | 21B29 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21B50 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21B31 | 5 | 19N | 11E | 4700 |
| Stampede Pass | 21B10 SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21B30 | 18 | 19N | 11E | 4100 |
| **Cedar River** | | | | | |
| City Cabin | 21B3 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21B21P | 30 | 22N | 10E | 3300 |
| **Snoqualmie River** | | | | | |
| Alpine Meadow | 21B4B | 31 | 27N | 9E | 3500 |
| Olallie Meadows | 21B2P | 19 | 22N | 11E | 3625 |
| Olallie Meodows East | 21B55SP | 20 | 22N | 11E | 3700 |
| **Skagit River** | | | | | |
| Beover Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Pass | 21A1 | 9 | 39N | 12E | 3680 |
| Brown Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A38 | 8 | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Baker River** | | | | | |
| Dock Butte | 21A11A | 8 | 36N | 8E | 3800 |
| Easy Pass | 21A7A | 19 | 39N | 11E | 5200 |
| Jasper Pass | 21A6A | 17 | 38N | 11E | 5400 |
| Marten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadow | 21A10AP | 1B | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |

## OLYMPIC PENINSULA

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Dungeness River** | | | | | |
| Deer Park | 23B4 | 1 | 28N | 5W | 5200 |
| **Elwho River** | | | | | |
| Hurricane | 23B3 | 36 | 29N | 7W | 4500 |
| Cox Valley | 23B14 | 31 | 29N | 6W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Marker |
| 21A7M | Snow Course And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

NOTICE

The Snow Survey program has undergone a few changes during the past summer. Bob Davis, the longtime Snow Survey Supervisor in Washington state, retired. We wish Bob the best of everything in retirement

Data collection for the Washington Snow Surveys will be handled out of our Portland, Oregon office. All snow surveys will be sent to the Data Collection Office Supervisor, 1220 S W Third Avenue, 16th Floor, Portland, Oregon 97204. Other data and requests will be handled out of the Spokane office as before. The Spokane contact will be William F. Weller, Water Supply Specialist for the Washinton Soil Conservation Service. Mr Weller can be contacted at (509) 456-3715.

# WATER SUPPLY OUTLOOK

State of Washington

February 1, 1984

Near normal water supplies are forecast for most Washington water users this coming spring and summer. The mountain snowpack ranges well below average to average. It is below average in the Spokane, Pend Oreille, Yakima, Wenatchee, Entiat and Methow Rivers. The West Cascade slopes show well below average snowpack, with the Skagit having less than 50% of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage is very good for February 1.

## SNOW COVER

Only North Centeral Washington Watersheds show average snowpack, with the Kettle at 101% and the Methow at 100%. Other Eastern Washington watersheds have snowpacks of 74% on the Pend Oreille, 94% on the Colville, 87% on the Okanogan. The Spokane River snowpack is 66%. Most of the east slope Cascade watersheds have snowpacks in the low 70 to high 60%.

Puget Sound Watersheds are well below normal ranging from a low of 47% on the Skagit to 72% on the Skykomish. Olympic Peninsula Streams are also below average with the Elwha River having a snowpack of 76% and the Dungeness 63%.

## PRECIPITATION

Precipitation during the November-January winter period has been above average over the entire state. During this period the Puget Sound area recieved 42.24 inches, 110% of normal. The Yakima-Wenatchee area recieved 5.23 inches, 150% of normal. Precipitation in the south eastern area was 110% of normal.

## RESERVOIR STORAGE

Stored water supplies are very good for February 1, with all reporting having above average. The Yakima irrigation reservoirs are storing 796,000 acre feet of water compared to the February 1 average of 656,000, or 121%. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 392,200 acre-feet, 133% of normal and Banks Reservoir is at 697,700 acre-feet, 112% of normal.

## STREAMFLOW

River flows during January were generally above average due to warming trends that occurred the first and last weeks of the month. Minor flooding occurred on some Puget Sound streams as well as some of the streams on the east slopes of the Cascades. Spring and summer streamflow are forecast to be within 20% of average over most of the state. The Skagit River at 81%, the Spokane River at 82% and the Dungeness River at75% are the low forecasts. The northeast streams, the Kettle at 115% and the Colville at 114% are the only ones forecast above average.

STREAMFLOW FORECASTS - FEBRUARY 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1982 and 1983 are preliminary and subject to revision.

| Basin, Stream and Station | Forecast Runoff 1984 | Seasonal Streamflow in Thousands of Acre-Feet: 20-Yr. Avg. | Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| **COLUMBIA BASIN** | | | | | | | |
| **COLUMBIA RIVER SYSTEM** 1/ | | | | | | | |
| Columbia River | 42400 | 95 | Apr-Sept | 43225 | 48575 | 48531 | 44605 |
| at Birchbank | 33900 | 95 | Apr-July | 34569 | 38210 | 38501 | 35705 |
| | 24700 | 95 | Apr-June | 24281 | 27454 | 27002 | 26027 |
| Columbia River | 61300 | 92 | Apr-Sept | 46662 | 56425 | 70303 | 66841 |
| at Grand Coulee | 51400 | 92 | Apr-July | 34933 | 43821 | 58525 | 56169 |
| | 40500 | 92 | Apr-June | 26597 | 32610 | 44235 | 44036 |
| Columbia River bl. | 68100 | 94 | Apr-Sept | 44560 | 79386 | 77308 | 72781 |
| Rock Island Dam | 57600 | 94 | Apr-July | 58672 | 66629 | 64689 | 61601 |
| | 45500 | 94 | Apr-June | 69844 | 50985 | 49348 | 48384 |
| Columbia River at | 94500 | 94 | Apr-Sept | 103682 | 118503 | 96188 | 100800 |
| The Dalles, OR | 90700 | 94 | Apr-July | 88273 | 101631 | 81125 | 86080 |
| | 65600 | 94 | Apr-June | 70038 | 80122 | 63521 | 69881 |
| **PEND OREILLE RIVER SYSTEM** | | | | | | | |
| Pend Oreille River | 12000 | 78 | Apr-Sept | 12841 | 17721 | 13896 | 15425 |
| bl. Box Canyon | 11000 | 78 | Apr-July | 11482 | 16324 | 13179 | 14156 |
| | 9500 | 78 | Apr-June | 9226 | 13306 | 11594 | 12227 |
| **KETTLE RIVER SYSTEM** | | | | | | | |
| Kettle River | 2100 | 115 | Apr-Sept | 2709 | 2330 | 2184 | 1829 |
| nr. Laurier | 1990 | 114 | Apr-July | 2534 | 2174 | 2013 | 1738 |
| | 1800 | 114 | Apr-June | 2251 | 1747 | 1657 | 1581 |
| Colville River | 153 | 114 | Apr-Sept | 182 | 160 | 125 | 134 |
| at Kettle Falls | 140 | 114 | Apr-July | 161 | 146 | 111 | 123 |
| | 130 | 114 | Apr-June | 144 | 132 | 95 | 114 |

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| SPOKANE RIVER SYSTEM | | | | | | | |
| Spokane River 2/ | 2340 | 82 | Apr-Sept | M | M | 2238 | 2848 |
| at Post Falls, ID | 2260 | 82 | Apr-July | M | M | 2145 | 2754 |
| OKANOGAN RIVER SYSTEM | | | | | | | |
| Similkameen River | 1460 | 100 | Apr-Sept | 1490 | 1638 | 1241 | 1462 |
| nr. Nighthawk | 1365 | 100 | Apr-July | 1356 | 1491 | 1118 | 1365 |
| | 1160 | 100 | Apr-June | 1155 | 1166 | 930 | 1161 |
| Okanogan River | 1620 | 99 | Apr-Sept | 2170 | 2046 | 1631 | 1644 |
| nr. Tonasket | 1482 | 99 | Apr-July | 1891 | 1712 | 1416 | 1497 |
| | 1250 | 99 | Apr-June | 1569 | 1306 | 1107 | 1262 |
| METHOW RIVER SYSTEM | | | | | | | |
| Methow River | 970 | 99 | Apr-Sept | 1354 | 1203 | 786 | 980 |
| nr. Pateros | 900 | 99 | Apr-July | 1243 | 1120 | 724 | 908 |
| | 765 | 99 | Apr-June | 1094 | 918 | 602 | 773 |
| CHELAN RIVER SYSTEM | | | | | | | |
| Chelan River | 1170 | 97 | Apr-Sept | 1261 | 1376 | 916 | 1203 |
| at Chelan 3/ | 1025 | 97 | Apr-July | 1104 | 1223 | 798 | 1055 |
| | 800 | 97 | Apr-June | 901 | 958 | 621 | 826 |
| Stehekin River | 840 | 98 | Apr-Sept | M | 938 | 662 | 860 |
| at Stehekin | 710 | 98 | Apr-July | 727 | 800 | 543 | 727 |
| | 540 | 98 | Apr-June | 572 | 603 | 403 | 553 |
| Entiat River | 216 | 92 | Apr-Sept | 292 | 282 | 186 | 235 |
| nr. Ardenvoir | 196 | 92 | Apr-July | 263 | 258 | 168 | 213 |
| | 158 | 92 | Apr-June | 221 | 206 | 137 | 172 |
| WENATCHEE RIVER SYSTEM | | | | | | | |
| Wenatchee River | 1200 | 94 | Apr-Sept | M | M | M | 1270 |
| nr. Plain | 1070 | 94 | Apr-July | M | M | M | 1136 |
| | 845 | 94 | Apr-June | M | M | M | 899 |
| Wenatchee River | 1680 | 98 | Apr-Sept | 1590 | 2013 | 1188 | 1712 |
| at Peshastin | 1510 | 98 | Apr-July | 1432 | 1791 | 1075 | 1545 |
| | 1210 | 98 | Apr-June | 1191 | 1429 | 869 | 1237 |
| Stemilt Basin | 117 * | 85 | May-Sept | M | M | M | **138 |
| nr. Wenatchee | | | | | | | |
| Icicle Creek | 310 | 84 | Apr-Sept | M | M | M | **370 |
| nr. Leavenworth | 290 | 85 | Apr-July | M | M | M | **340 |
| | 230 | 85 | Apr-June | M | M | M | **270 |

* Thousands of Miners' Inches.

** Average computed for 1963-1977.

2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho. Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

| Basin, Stream and Station | Forecast Runoff 1984 | Seasonal Streamflow in Thousands of Acre-Feet: % 20-Yr. Avg. | Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| YAKIMA RIVER SYSTEM | | | | | | | |
| Yakima River | 125 | 90 | Apr-Sept | 109 | 152 | 95 | 139 |
| nr. Martin 4/ | 115 | 90 | Apr-July | 96 | 138 | 82 | 128 |
| | 100 | 90 | Apr-June | 81 | 121 | 73 | 111 |
| Yakima River | 810 | 86 | Apr-Sept | 733 | 1100 | 700 | 943 |
| at Cle Elum 5/ | 735 | 86 | Apr-July | 659 | 1010 | 643 | 854 |
| | 630 | 86 | Apr-June | 589 | 883 | 563 | 734 |
| Yakima River | 1900 | 91 | Apr-Sept | 2221 | 2434 | 1194 | 2096 |
| nr. Parker 6/ | 1710 | 90 | Apr-July | 1958 | 2193 | 1059 | 1898 |
| | 1500 | 90 | Apr-June | 1722 | 1909 | 961 | 1667 |
| Kachess River | 105 | 87 | Apr-Sept | 105 | 134 | 81 | 121 |
| nr. Easton 7/ | 100 | 87 | Apr-July | 96 | 126 | 72 | 115 |
| | 88 | 87 | Apr-June | 84 | 110 | 66 | 101 |
| Cle Elum River | 425 | 92 | Apr-Sept | 421 | 516 | 313 | 463 |
| nr. Roslyn 8/ | 380 | 90 | Apr-July | 381 | 468 | 282 | 422 |
| | 320 | 91 | Apr-June | 324 | 392 | 244 | 353 |
| Bumping River 9/ | 132 | 93 | Apr-Sept | 137 | 161 | 78 | 142 |
| nr. Nile | 120 | 93 | Apr-July | 128 | 147 | 70 | 129 |
| | 100 | 93 | Apr-June | 109 | 123 | 63 | 107 |
| American River | 110 | 89 | Apr-Sept | M | 140 | 63 | 124 |
| nr. Nile | 100 | 88 | Apr-July | M | 130 | 58 | 113 |
| | 83 | 88 | Apr-June | M | 109 | 51 | 94 |
| Tieton River 10/ | 225 | 91 | Apr-Sept | M | M | 148 | 246 |
| at Tieton Dam | 190 | 92 | Apr-July | M | M | 131 | 207 |
| | 150 | 91 | Apr-June | M | M | 108 | 165 |
| Naches River 11/ | 800 | 92 | Apr-Sept | 966 | 998 | 419 | 867 |
| nr. Naches | 720 | 92 | Apr-July | 881 | 945 | 380 | 784 |
| | 610 | 91 | Apr-June | 770 | 775 | 339 | 667 |
| Ahtanum Creek 12/ | 46 | 98 | Apr-Sept | M | M | M | 47 |
| nr. Tampico | 42 | 98 | Apr-July | M | M | M | 43 |
| | 36 | 97 | Apr-June | M | M | M | 37 |

4/ Observed flow correted for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
7/ Observed flow corected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Fore-cast period | Seasonal Streamflow in Thousands of Acre-Feet 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| LOWER COLUMBIA RIVER SYSTEM | | | | | | | |
| Mill Creek | 17.0 | 97 | Apr-Sept | 13.48 | 24.62 | 28.5 | **17.50 |
| at Walla Walla | 16.8 | 97 | Apr-July | 13.39 | 24.48 | 28.5 | **17.33 |
| | 16.6 | 97 | Apr-June | 13.36 | 21.63 | 27.3 | **17.15 |
| Lewis River | 1140 | 91 | Apr-Sept | 1255 | 1170 | 1096 | 1249 |
| at Ariel 13/ | 990 | 91 | Apr-July | 1046 | 1030 | 971 | 1086 |
| | 875 | 91 | Apr-June | 821 | 927 | 865 | 961 |
| Cowlitz River 14/ | 1850 | 91 | Apr-Sept | 1935 | 4936 | M | 2038 |
| bl. Mayfield Dam | 1610 | 91 | Apr-July | 1754 | 1963 | M | 1778 |
| | 1369 | 91 | Apr-June | 1424 | 1722 | M | 1502 |
| Cowlitz River 14/ | 2240 | 84 | Apr-Sept | 2618 | 2655 | 2390 | 2673 |
| at Castle Rock | 1950 | 84 | Apr-July | 2195 | 2363 | 2125 | 2323 |
| | 1660 | 84 | Apr-June | 1739 | 2080 | 1875 | 1980 |
| OLYMPIC PENINSULA | | | | | | | |
| DUNGENESS RIVER SYSTEM | | | | | | | |
| Dungeness River | 120 | 75 | Apr-Sept | 197 | 196 | 109 | 160 |
| nr. Sequim | 100 | 77 | Apr-July | 158 | 163 | 88 | 130 |
| | 72 | 76 | Apr-June | 117 | 117 | 70 | 97 |
| ELWHA RIVER SYSTEM | | | | | | | |
| Elwha River | 478 | 86 | Apr-Sept | 538 | 607 | 380 | **553 |
| nr. Port Angeles | 390 | 86 | Apr-July | 448 | 512 | 316 | **454 |
| PUGET SOUND | | | | | | | |
| SKAGIT RIVER SYSTEM | | | | | | | |
| Skagit River | 2050 | 81 | Feb-Aug | 1995 | 2248 | 2119 | **2532 |
| at Newhalem 15/ | 1910 | 81 | Apr-Sept | 1531 | 1880 | 1773 | **2356 |
| | 1600 | 81 | Apr-July | 1061 | 1439 | 1431 | **1972 |
| | 1200 | 81 | Apr-June | 698 | 1004 | 1064 | **1485 |
| GREEN RIVER SYSTEM | | | | | | | |
| Green River bl. | 262 | 83 | Apr-Sept | 190 | 227 | 268 | **316 |
| Howard Hanson Dam 16/ | 235 | 83 | Apr-July | 145 | 195 | 245 | **284 |
| | 210 | 82 | Apr-June | 107 | 174 | 219 | **256 |
| CEDAR RIVER SYSTEM | | | | | | | |
| Cedar River | 78 | 84 | Apr-Sept | 66 | 80 | 74 | **93 |
| nr. Cedar Falls | | | | | | | |

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

## COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1984 as percent of the same date in 1983 and 1982 and average of record.

| Tributary Basin | No. of Courses Average | 1984 Snow Water Expressed as percent of 1983 | 1982 | 1963-77 Avg. |
|---|---|---|---|---|
| | | UPPER COLUMBIA BASIN | | |
| Pend Oreille | 7 | 69 | 73 | 74 |
| Ketttle | 11 | 77 | 89 | 101 |
| Colville | 1 | 68 | 82 | 94 |
| Spokane | 4 | 83 | 68 | 66 |
| Okanogan | 25 | 82 | 83 | 87 |
| Methow | 4 | 109 | 113 | 100 |
| Chelan | 4 | 78 | 68 | 79 |
| Entiat | 9 | 66 | 72 | 68 |
| Wenatchee | 9 | 72 | 62 | 69 |
| Yakima | 13 | 70 | 71 | 74 |
| Antanum | 2 | 64 | 92 | 97 |
| | | LOWER COLUMBIA BASIN | | |
| Mill Creek | 0 | xxx | 69 | xxx |
| Cowlitz | 1 | 75 | 76 | 81 |
| | | PUGET SOUND | | |
| White | 0 | xxx | 119 | xxx |
| Green | 5 | 108 | 49 | 57 |
| Snoqualmie | 1 | 83 | 45 | 55 |
| Skykomish | 2 | 80 | 67 | 72 |
| Skagit | 14 | 51 | 50 | 47 |
| Baker | 8 | 70 | - | 66 |
| | | OLYMPIC PENINSULA | | |
| Morse | 1 | 76 | 71 | 79 |
| Elwha | 1 | 83 | 82 | 76 |
| Dungeness | 1 | 54 | 52 | 63 |

RESERVOIR STORAGE - 1000 Acre Feet

| BASIN OR STREAM | RESERVOIR | USABLE 1/ CAPACITY | Measured (February) 1984 | 1983 | 1982 | Normal* |
|---|---|---|---|---|---|---|
| | | COLUMBIA | | | | |
| Spokane | Coeur d'Alene Lake | 225.1 | 183.6 | 168.5 | 72.2 | 145.3 |
| Columbia | Franklin D. Rossevelt Lake | 5232.0 | 5058.7 | 5177.2 | 4961.6 | 3698.2 |
| Columbia | Banks Lake | 714.9 | 697.7 | 709.6 | 704.2 | 619.4 |
| Okanogan | Conconully Reservoir | 13.0 | 13. | 11.5 | 9.1 | 6.2 |
| Okanogan | Conconully Lake | 10.5 | 10.4 | 10.4 | 8.9 | 7.6 |
| Chelan | Lake Chelan | 676.1 | 392.3 | 295.1 | 319.9 | 294.2 |
| | | YAKIMA | | | | |
| Yakima | Keechelus Lake | 157.8 | 137.1 | 87.3 | 82.1 | 97.6 |
| Kachess | Kachess Lake | 239.0 | 188.8 | 199.8 | 148.0 | 173.4 |
| Cle Elum | Lake Cle Elum | 436.9 | 296.3 | 284.7 | 57.6 | 259.7 |
| Bumping | Bumping Lake | 33.7 | 17.2 | 6.2 | 4.0 | 7.8 |
| Tieton | Rimrock Lake | 198.0 | 151.6 | 137.8 | 116.1 | 118.0 |
| | | PUGET SOUND | | | | |
| Skagit | Ross Reservoir | 1404.1 | 1225.3 | 1045.1 | 942.9 | 1012.6 |
| Skagit | Diablo Reservoir | 90.6 | 83.9 | 83.5 | 84.0 | 84.2 |
| Skagit | Gorge Reservoir | 9.8 | 7.7 | 8.0 | 7.9 | 7.9 |

1/ Based on Active Storage
* 15-yr. Average 1963-1977

## PRECIPITATION 1/

Division Average Observations and Departures

| Drainage Divisions | Fall Sept-Oct 1983 2/ Observed | Departures | Winter Nov. 1983 - Jan. 1984 2/ Observed | Departures |
|---|---|---|---|---|
| Northeastern Wash | 1.55 | -1.55 | 8.44 | +1.73 |
| Southeastern Wash | 2.54 | -0.06 | 7.77 | +0.71 |
| East slope Cascade | 3.76 | -0.99 | 5.55 | +1.83 |
| North Central Wash | 1.45 | -0.14 | 5.23 | +0.39 |
| Northwest Cascade | 7.97 | -5.24 | 42.24 | +4.31 |
| Southwest Cascade | 5.36 | -3.32 | 29.24 | +0.33 |

Northwestern Washington - Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages

East Slope Cascades - Yakima, Wenatchee, and Chelan Drainages

North Central Washington - Methow and Okanogan Drainages

Northwest Slope Cascades - Puget Sound Drainages

Southwest Slope Cascades - Lower Columbia Drainages

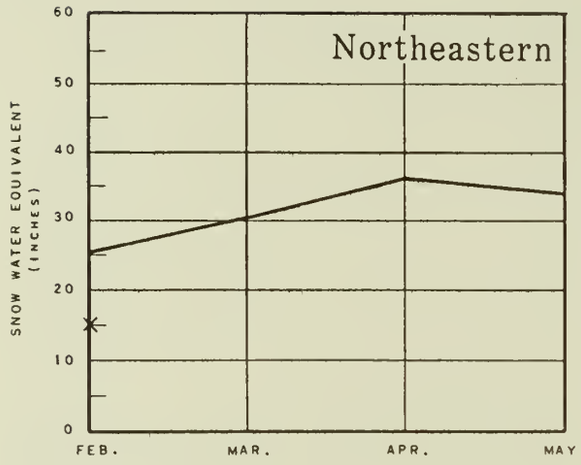
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service

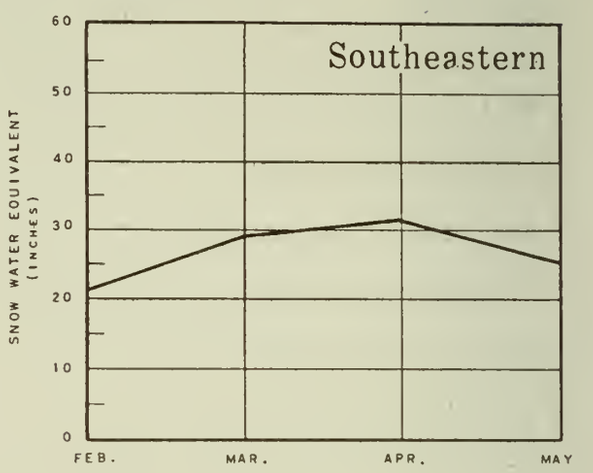
2/ - Departure from 15-year (1958-1972) drainage division average

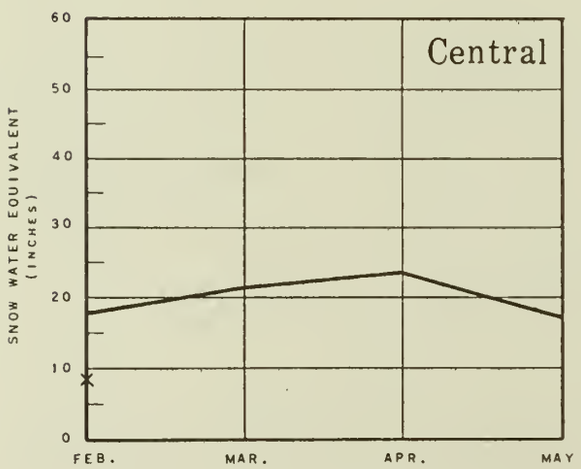
# WASHINGTON SNOW COVER

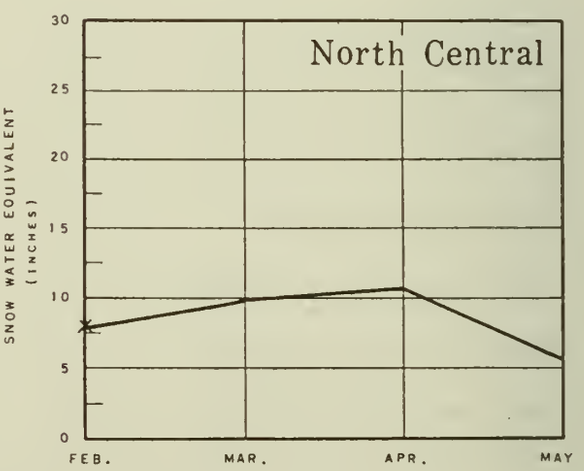
**1984**

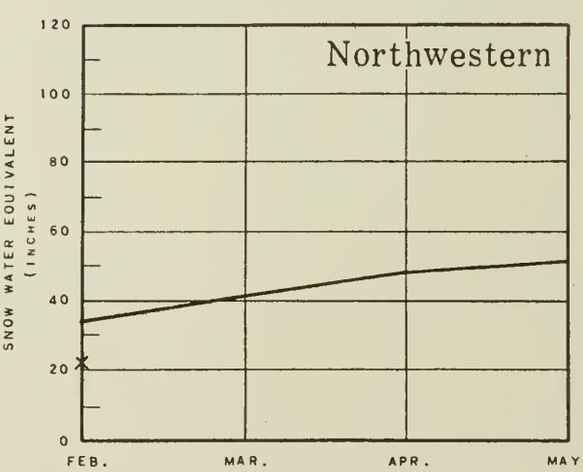
## DRAINAGE AREAS

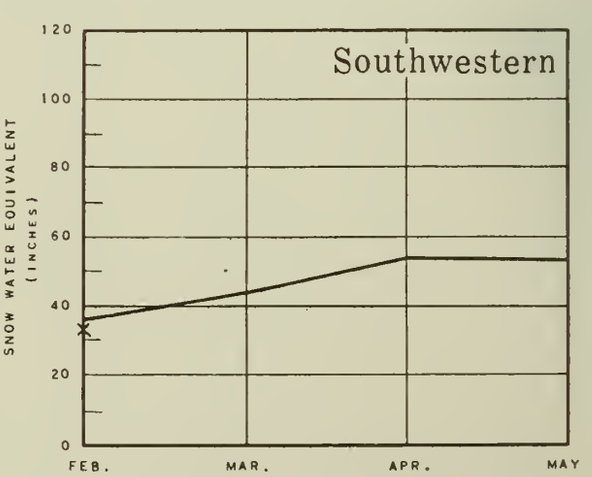



**Average** ——————
**1984** - - - - - - -

*Selected Snow Survey Courses by Soil Conservation Service*

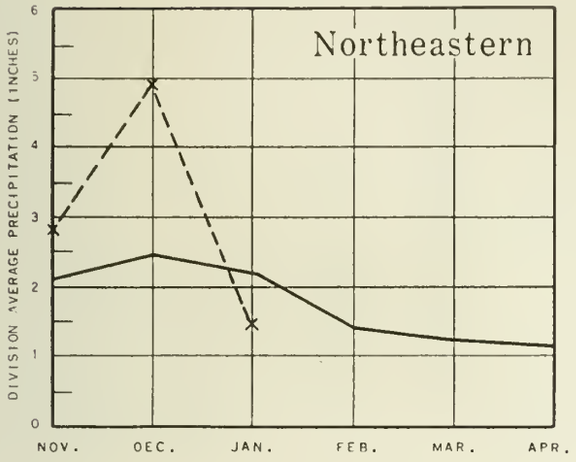


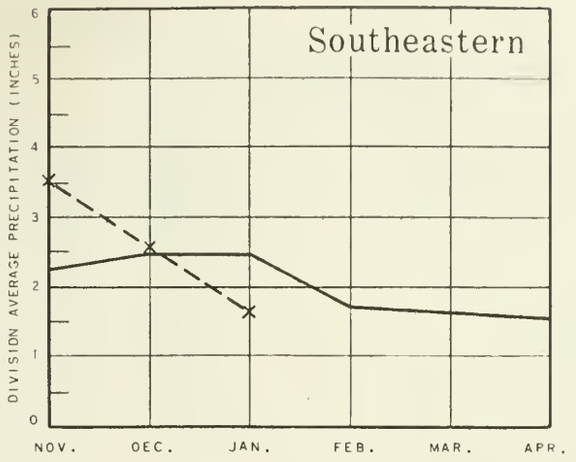
M7-L-22028G

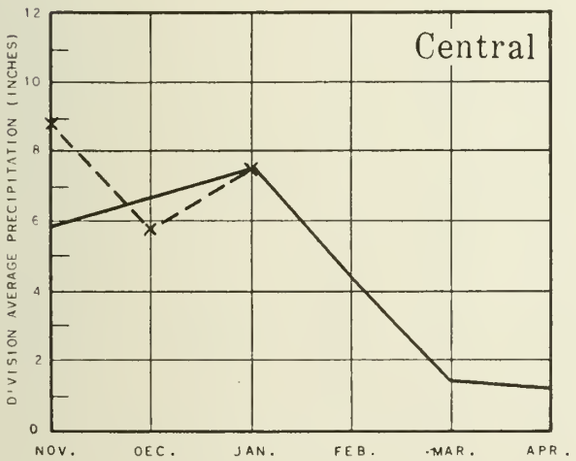
# WASHINGTON VALLEY PRECIPITATION

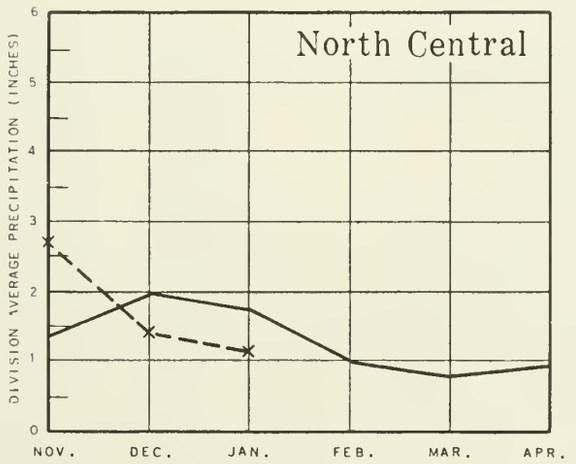
**1984**

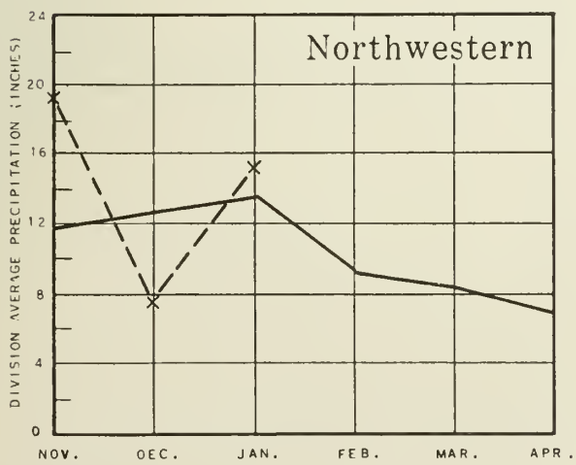
## DRAINAGE AREAS

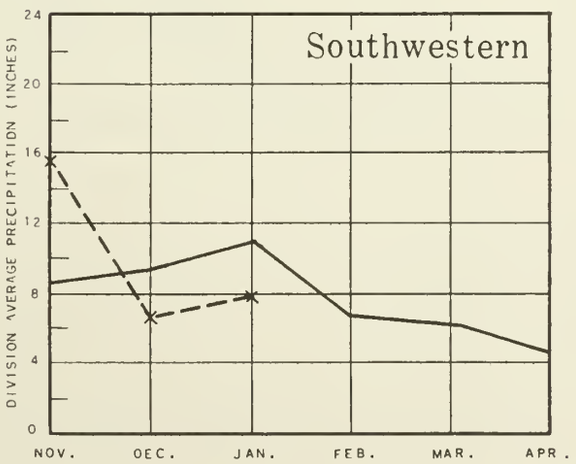



**Average** ———
**1984** - - - - - -

*Preliminary Analysis by National Weather Service*

WSFB-X4-L

# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 1

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| **UPPER COLUMBIA DRAINAGE** | | | | | | | |
| **PEND OREILLE RIVER** | | | | | | | |
| Benton Meadow | 16A02 | 2344 | 1/27 | 19 | 4.8 | 4.9 | 5.2 |
| Benton Spring | 16A03 | 4900 | 1/27 | 34 | 9.5 | 16.2 | 13.2 |
| Chewelah | 17A04 | 4925 | Not Measured | | | | 11.5 |
| Heart Lake Trail | 14C10 | 4800 | 1/31 | 33 | 10.6 | 12.5 | 12.8 |
| Hoodoo Basin | 15C10 | 6000 | 1/31 | 78 | 26.2 | 33.7 | 36.3 |
| Hoodoo Creek | 15C01 | 5900 | 1/31 | 74 | 24.6 | 31.2 | 32.5 |
| Lookout | 15B02 | 5250 | 1/30 | 46 | 15.0 | 22.0 | 25.4 |
| Nelson | 2D04CA | 3050 | 1/30 | 24 | 6.7 | 14. | 11.* |
| Schweitzer Bowl | 16A06 | 4500 | Not Measured | | | 28.0 | 23.1 |
| Schweitzer Ridge | 16A05 | 6100 | Not Measured | | | 40.0 | 34.2 |
| **KETTLE RIVER** | | | | | | | |
| Barnes Creek | 2B06CA | 5300 | 1/30 | 50 | 13.1 | | 13.4* |
| Big White Mtn. | 2E03CA | 5500 | 1/29 | 49 | 12.9 | 16.0 | 13.5* |
| Butte Creek | 18A03 | 4070 | 1/28 | 32 | 8.0 | 8.1 | 6.7 |
| Carmi | 2E02CA | 4100 | 1/30 | 22 | 4.6 | 6.5 | 5.0* |
| Farron #1 | 2B02CA | 4000 | Not Measured | | | 13.6 | 9.4* |
| Farron #2 | 2.b02aC | 4000 | 1/31 | 34 | 9.9 | 13.6 | 8.4* |
| Goat Creek | 18A04 | 3595 | 1/28 | 26 | 4.9 | | 5.4 |
| Moashee Pass | 2E01CA | 4500 | 1/30 | 37 | 7.9 | | 9.4* |
| Summit G.S. | 18A05 | 2150 | 1/28 | 27 | 6.0 | 7.0 | 5.7 |
| Trapping Creek Lower | 2E05CA | 3050 | 1/28 | 22 | 4.6 | 5.4 | 4.2* |
| Trapping Creek Upper | 2E04CA | 4450 | 1/28 | 32 | 7.3 | 9.0 | 7.1* |
| **COLVILLE RIVER** | | | | | | | |
| Baird | 17A06 | 3215 | 1/28 | 23 | 5.4 | 7.6 | 5.7 |
| Chewelah | 17A04 | 4925 | Not Measured | | | | 11.5 |
| Togo | 18A10 | 3370 | Not Measured | | | | 8.6 |

* Average for years of record.
\# Average based on 1961-1980 averages.

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# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 2

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| SPOKANE RIVER | | | | | | | |
| Above Burke | 15B08 | 4100 | 1/30 | 30 | 9.0 | 12.5 | 16.4 |
| 4th of July Summit | 16B03 | 3100 | 1/27 | 24 | 6.9 | 7.0 | 7.3 |
| Lookout | 15B02 | 5250 | 1/30 | 46 | 15.0 | 22.0 | 25.4 |
| Mosquito Ridge | 16A04 | 5110 | 2/01 | 56 | 18.2 | 30.4 | 24.5 |
| Sherwin | 16C01 | 3200 | Not Measured | | | 6.5 | 10.7 |
| Sunset | 15B09A | 5600 | 1/31 | 42 | 13.2 | 21.8 | 27.4 |
| NEWMAN LAKE | | | | | | | |
| Ragged Ridge | 17B02 | 3333 | 2/1 | 18 | 3.4 | 5.0 | New |
| OKANOGAN RIVER | | | | | | | |
| Aberdeen Lake | 1F01CA | 4300 | 1/30 | 18 | 4.7 | 6.0 | 5.0* |
| Blackwall Peak | 2G03CA | 6250 | 1/28 | 61 | 17.5 | 22.9 | 24.0* |
| Brenda Mine | 2F18CA | 4800 | 1/30 | 32 | 8.5 | 9.7 | 9.4* |
| Brookmere | 1C01CA | 3200 | 1/31 | 13 | 3.8 | 5.3 | 7.0* |
| Enderby | 1F04CA | 6250 | 1/31 | 82 | 26.4 | 28.1 | 25.0* |
| Esperon Creek Lower | 2F15CA | 4400 | Not Measured | | | | 7.8* |
| Esperon Creek Middle | 2F15CA | 4700 | " " | | | | 10.2* |
| Esperon Creek Upper | 2F13CA | 5400 | " " | | | | 10.6* |
| Grayback Reservoir | 2F08CA | 5225 | 1/30 | 26 | 7.0 | 7.7 | 6.2* |
| Hamilton Hill | 2G06CA | 4900 | 1/27 | 24 | 5.1 | 10.2 | 10.4* |
| Harts Pass | 20A05A | 6500 | 1/29 | 67 | 23.7 | 31.3 | 32.1 |
| Isintok Lake | 2F11CA | 6300 | 1/29 | 14 | 3.1 | 5.5 | 5.9* |
| Lost Horse Mountain | 2G04CA | 7000 | 1/30 | 18 | 3.5 | 6.9 | 6.7* |
| McCulloch | 2F03CA | 4200 | 1/27 | 20 | 4.6 | 4.5 | 3.1* |
| Missezula Mtn. | 2G05CA | 5100 | 1/28 | 17 | 3.5 | 5.9 | 6.7* |
| Mission Creek | 2F05CA | 6000 | 2/01 | 47 | 13.2 | 9.2 | 8.4* |
| Monashee Pass | 2E01CA | 4500 | 1/30 | 37 | 7.9 | | 9.4* |
| Mount Kobau | 2F12CA | 5960 | 1/28 | 33 | 9.4 | 10.9 | 8.7* |

* Average for years of record.
\# Average based on 1961-1980 averages.

# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 3

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE NAME | Number | Elevation | THIS YEAR Date of Survey | Snow Depth (Inches) | Water Content (Inches) | PAST RECORD Water Content (inches) Last Year | Average # |
|---|---|---|---|---|---|---|---|
| **OKANOGAN RIVER (CONT.)** | | | | | | | |
| Mutton Creek No. 1 | 19A01 | 5700 | 1/26 | 34 | 10.0 | | 9.6 |
| Mutton Creek No.2 sp | 19A11 | 6000 | 1/26 | | 11.3s | | New |
| Nickel Plate | 2G02CAN | 6200 | Not Measured | | | | 4.2* |
| Oyama Lake | 2F19CAN | 4400 | 1/30 | 18 | 3.9 | 7.1 | 5.1* |
| Postill Lake | 2F07CAN | 4500 | 1/31 | 23 | 5.9 | 6.6 | 5.8* |
| Rusty Creek | 19A03 | 4000 | 1/26 | 20 | 5.9 | | 5.3 |
| Salmon Meadows | 19A02 | 4500 | 1/26 | 27 | 7.9 | | 7.1 |
| Silver Star Mountain | 2F10CAN | 6050 | 1/29 | 56 | 18.1 | 22.0 | 18.9* |
| Summerland Reservoir | 2F02CAN | 4200 | 1/28 | 23 | 5.9 | 7.5 | 7.4* |
| Sunday Summit | 2G01CAN | 4300 | 1/30 | 7 | 2.0 | 3.9 | 5.1* |
| Trout Creek | 2F01CAN | 4700 | 1/30 | 13 | 3.5 | 6.5 | 5.3* |
| Vaseux Creek | 2F20CAN | 4600 | 1/31 | 18 | 3.9 | 6.1 | 4.4* |
| White Rocks Mountain | 2F09CAN | 6000 | 1/30 | 48 | 16.9 | 15.7 | 16.7* |
| **METHOW RIVER** | | | | | | | |
| Harts pass | 20A05A | 6500 | 1/29 | 67 | 23.7 | 31.3 | 32.1 |
| Mutton Creek NO. 1 | 19A01 | 5700 | 1/26 | 34 | 10.0 | | 9.6 |
| Mutton Creek No. 2 sp | 19A11 | 6000 | | | 11.3s | | New |
| Rusty Creek | 19A03 | 4000 | 1/26 | 20 | 6.0 | | 5.6 |
| Salmon Meadows | 19A02 | 4500 | 1/26 | 27 | 7.9 | | 7.1 |
| **CHELAN LAKE BASIN** | | | | | | | |
| Cloudy Pass + | 20A22 | 6500 | 1/30 | 10 | 3.0 | | 29.7 |
| Lyman Lake | 20A23 | 5900 | 1/30 | 121 | 44.4 | 47.3 | 39.8 |
| Little Meadows | 20A24a | 5275 | 1/30 | 63 | 22.1 | 30.9 | 30.5 |
| Mirror Lake | 30A39 | 5600 | 1/30 | 60 | 19.5 | 26.8 | New |
| Park Creek Ridge | 20A12 | 4600 | 1/30 | 68 | 25.5 | 35.5 | 36.9 |
| Rainy Pass | 20A09 | 4780 | 1/30 | 61 | 19.4 | 27.4 | 29.6 |

* Average for years of record.
\# Average based on 1961-1980 averages.
\+ Aerial stadia observation.

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# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 4

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| **ENTIAT RIVER** | | | | | | | |
| Blue Creek G.S.+ | 20B28 | 5425 | Not Measured | | | 35.6 | 34.3 |
| Brief | 20B19 | 1600 | 1/30 | 16 | 4.5 | 7.4 | 6.8 |
| Entiat Meadows + | 20A33 | 4540 | 1/30 | 69 | 21.4 | 33.7 | 33.2 |
| Entiat River Trail + | 20A34 | 3325 | 1/30 | 42 | 12.2 | 17.5 | 18.5 |
| Four Mile Ridge + | 20B27 | 6800 | Not Measured | | | 24.4 | 30.9 |
| Fox Camp + | 20A36 | 6510 | 1/30 | 84 | 28.6 | 44.2 | 41.3 |
| Pope Ridge | 20B20 | 3450 | 1/30 | 41 | 11.2 | 13.9 | 14.7 |
| Pugh Ridge + | 20A32 | 6725 | 1/30 | 49 | 15.2 | 32.0 | 21.2 |
| Shady Pass | 20A37 | 6200 | 1/30 | 55 | 17.8 | 23.2 | 20.1 |
| Snow Brushy + | 20A35 | 3910 | 1/31 | 65 | 20.2 | 23.2 | 30.5 |
| Tommy Creek + | 20B21 | 4900 | 1/30 | 34 | 9.9 | 21.1 | 20.6 |
| **WENATCHEE RIVER** | | | | | | | |
| Berne Mill Creek | 21B23 | 3170 | 1/31 | 41 | 14.0 | 18.8 | 20.8 |
| Berne Mill Creek SP | 21B41 | 3240 | 1/31 | 41 | 14.0 | 19.2 | 20.4 |
| Blewett Pass No. 2 | 20B02 | 4270 | 2/01 | 19 | 7.7 | 12.0 | 13.2 |
| Chiwaukum G. S. | 20B16 | 1810 | 1/31 | 21 | 7.4 | 11.5 | 9.5 |
| Lake Wenatchee | 20B05 | 1970 | 1/31 | 19 | 7.0 | 11.0 | 11.6 |
| Lyman Lake | 20A23 | 5900 | 1/30 | 121 | 44.4 | 47.3 | 39.8 |
| Merrett | 20B18 | 2140 | 1/31 | 13 | 4.9 | 11.6 | 14.0 |
| Stevens Pass | 21B01 | 4070 | 1/31 | 68 | 26.8 | 33.5 | 36.0 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 1/31 | 51 | 18.4 | 23.9 | 25.9 |
| **COLOCKUM CREEK** | | | | | | | |
| Trough #2 | 20B25 | 5310 | 1/28 | 6 | 1.8 | 13.3 | 7.4 |

+ Aerial stadia observation
# Average based on 1961-1980 averages.

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# SNOW DATA TO FEBRUARY 1 , 1984 - APPENDIX 5

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| SQUILCHUCK CREEK | | | | | | | |
| Beehive Springs | 20B03 | 4400 | 1/28 | 11 | 4.7 | 7.4 | 6.5 |
| Scout-a-Vista | 20B04 | 3400 | Not Measured | | | 8.7 | 6.9 |
| STEMILT CREEK | | | | | | | |
| Stimelt Slide | 20B06 | 5000 | Not Measured | | | 12.6 | 11.2 |
| Upper Wheeler | 20B07 | 4400 | 1/28 | 28 | 9.6 | 12.3 | 8.1 |
| YAKIMA RIVER | | | | | | | |
| Ahtanum R.S. | 21C11 | 3100 | 1/26 | 16 | 5.5 | 9.6 | 6.1 |
| Big Boulder Creek | 21B09 | 3200 | 2/01 | | 20.8s | 13.6 | |
| Blewet Pass No. 2 | 20B02 | 4270 | 2/01 | 19 | 7.7 | 12.0 | 12.6 |
| Bumping Lake Old | 21C08 | 3450 | 1/06 | 34 | 9.0 | 9.6 | 6.5 |
| | | | 1/30 | 26 | 9.0 | 13.5 | 13.3 |
| Bumping Lake New | 21C36 | 3400 | 1/06 | 42 | 11.0 | 11.8 | 8.3 |
| | | | 1/30 | 34 | 10.3 | 16.3 | 16.8 |
| Cayuse Pass | 21C06 | 5300 | Not Measured | | | 64.7 | 59.5 |
| Colockum Pass | 20B09 | 5370 | 2/01 | 36 | 13.4 | 14.9 | 11.8 |
| Corral Pass | 21B13 | 6000 | 2/01 | | 8.6s | | |
| Fish Lake | 21B04 | 3371 | Not Measured | | 20.1s | 21.1 | 20.0 |
| Green Lake | 21C10 | 6000 | 1/26 | 55 | 20.5 | 20.9 | 20.1 |
| Grouse Camp | 20B11 | 5385 | 1/30 | 27 | 11.1 | 18.3 | 12.0 |
| Lake Cle Elum | 21B14 | 2200 | 1/31 | 5 | 2.2 | 5.3 | 8.5 |
| Olallie Meadows | 21B02 | 3625 | 1/30 | 38 | 17.5 | 23. | 31.8 |
| Stampede Pass | 21B10 | 3860 | 2/03 | 61 | 25.8 | 28.2 | 31.5 |
| Tunnel Avenue | 21B08 | 2450 | 12/27/83 | 30 | 7.0 | 11.5 | 8.4 |
| | | | 1/31 | 24 | 8.6 | 13.8 | 16.8 |
| White Pass E. Side | 21C28 | 4500 | 12/27/83 | 41 | 14.0 | 11.9 | 10.5 |
| | | | 1/25 | 39 | 15.0 | 19.5 | 17.3 |

# Average based on 1961-1980 Averages.

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SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 6

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Ahtanum R. S. | 21C11 | 3100 | 1/26 | 16 | 5.5 | 9.6 | 6.1 |
| Green Lake | 21C10 | 6000 | 1/26 | 55 | 20.5 | 28.3 | 19.5 |
| LOWER COLUMBIA DRAINAGE | | | | | | | |
| MILL CREEK | | | | | | | |
| High Ridge | 18D19 | 4150 | Not Measured | | | 20.4 | 17.7 |
| COWLITZ RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | Not Measured | | | 64.7 | 59.5 |
| White Pass E. Side | 21C28 | 4500 | 12/27/83 | 41 | 14.0 | 11.9 | 10.5 |
| | | | 1/25/84 | 39 | 15.0 | | |
| | | | | | | 19.5 | 18.4 |
| PUGET SOUND DRAINAGE | | | | | | | |
| WHITE RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | Not Measured | | | 64.7 | 59.5 |
| GREEN RIVER | | | | | | | |
| Airstrip | 21B24 | 1800 | 2/02 | 0.0 | | 2.4 | 1.8 |
| Charley Creek | 21B25 | 1200 | 2/02 | 0.0 | | 0.0 | 1.5 |
| Grass Mtn. No. 2 | 21B27 | 2900 | 2/02 | 0.0 | | 3.8 | 13.2 |
| Grass Mtn. No. 3 | 21B28 | 2100 | 2/02 | 0.0 | | 0.0 | 4.3 |
| Lester Creek | 21B29 | 3100 | 2/02 | 23. | 8.2 | 10.6 | 16.2 |
| Lynn Lake | 21B50 | 4000 | 2/02 | 13. | 5.2 | 25.4 | 15.6 |
| Sawmill Ridge | 21B31 | 4700 | 2/02 | 41 | 15.2 | 28.8 | 25.9 |
| Stampede Pass | 21B10 | 3860 | 2/01 | 61 | 25.8 | 28.5 | 30.1 |
| Twin Camp | 21C30 | 4100 | 2/02 | 25 | 10.6 | 15.5 | 17.3 |

# Average based on 1961-1980 averages

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# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 7

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows | 21B02 | 3625 | 1/30 | 38 | 17.5 | 23.0 | 31.8 |
| SKYKOMISH RIVER | | | | | | | |
| Stevens Pass | 21B01 | 4070 | 1/31 | 68 | 26.8 | 33.5 | 36.0 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 1/31 | 51 | 18.4 | 23.9 | 25.9 |
| SKAGIT RIVER | | | | | | | |
| Beaver Creek Trail | 21A04 | 2200 | 1/31 | 12 | 4.1 | 10.7 | 11.3 |
| Beaver Pass | 21A01 | 3680 | 1/30 | 32 | 13.3 | 24.1 | 21.4 |
| Brown Top Ridge | 21A28 | 6000 | 1/29 | 111 | 34.6 | 39.2 | 43.9 |
| Devils Park | 20A04 | 5900 | 1/29 | 66 | 18.6 | 30.4 | 32.5 |
| Freezeout Creek Trail | 20A01 | 3500 | 1/30 | 14 | 4.5 | 9.7 | 10.3 |
| Freezeout Meadows New | 20A38 | 5000 | 1/29 | 49 | 13.0 | 37.3 | 25.4 |
| Granite Creek | 21A29 | 3500 | 1/30 | 27 | 8.2 | 14.6 | 16.3 |
| Harts Pass | 20A05A | 6500 | 1/29 | 67 | 23.7 | 31.3 | 32.1 |
| Klesilkwa | 3d03ACA | 3700 | 2/01 | 11 | 3.2 | 9.9 | 9.5* |
| Lightning Lake | 3D02CAN | 4000 | Not Measured | | | | 5.8* |
| Lyman Lake | 20A23 | 5900 | 1/30 | 121 | 44.4 | 47.3 | 39.8 |
| Meadow Cabins | 20A08 | 1900 | 1/30 | 6 | 3.0 | 4.1 | 6.9 |
| New Hozomeen Lake | 21A30 | 2800 | 1/30 | 9 | 3.0 | 8.4 | 9.5 |
| New Tashme | 3D01CAN | 2500 | | | | 6.0 | 8.3* |
| Rainy Pass | 20A09 | 4780 | 1/30 | 61 | 19.4 | 27.4 | 29.6 |
| Thunder Basin | 20A07 | 4200 | 1/30 | 17 | 4.6 | 16.0 | 17.0 |

# Average based on 1961-1980 averages
* Average for years of record

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# SNOW DATA TO FEBRUARY 1, 1984 - APPENDIX 8

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| BAKER RIVER | | | | | | | |
| Dock Butte + | 20A11A | 3800 | 1/30 | 86 | 33 | 36.0 | 44.4 |
| Easy Pass + | 21A07A | 5200 | 1/30 | 87 | 33 | 53.0 | 54.7 |
| Jasper Pass + | 21A06A | 5400 | 1/30 | 124 | 47 | 77.0 | 66.5 |
| Martin Lake | 21A09A | 3600 | 1/30 | 102 | 39.0 | 50.0 | 51.9 |
| Mt. Blum + | 21A18A | 5800 | 1/30 | 90 | 34.0 | 66.0 | 44.3 |
| Rocky Creek | 21A12A | 2100 | 1/30 | 12 | 5.0 | 14.0 | 22.6 |
| Schreibers Meadow | 21A10A | 3400 | 1/30 | 54 | 21.0 | 29.0 | 38.5 |
| S.F. Thunder Creek + | 21A14A | 2200 | 1/30 | 0.0 | | 0.0 | 8.1 |
| Watson Lake | 21A08A | 4500 | 1/30 | 71 | 27.0 | 44.0 | 41.3 |
| OLYMPIC PENINSULA DRAINAGE | | | | | | | |
| DUNGENESS RIVER | | | | | | | |
| Deer Park | 23B04 | 5200 | 1/30 | 20 | 8.9 | 17.8 | 14.0 |
| MORSE CREEK | | | | | | | |
| Cox Valley | 23B14 | 4500 | 1/28 | 50 | 21.1 | 30.2 | 26.7 |
| ELWHA RIVER | | | | | | | |
| Hurricane | 23B03 | 4500 | 1/29 | 29 | 11.2 | 15.1 | 14.6 |

+ Aerial stadia observation
# Average based on 1961-1980 average

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# SNOTEL READINGS, 1984 -APPENDIX 1

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE NAME | Number | Elevation | THIS YEAR: Date of Survey | Snow Depth (Inches) | Water Content (Inches) | PAST RECORD: Water Content (inches) Last Year | Average # |
|---|---|---|---|---|---|---|---|
| PEND OREILLE RIVER | | | | | | | |
| Bunchgrass Meadow | 17A01 | 5000 | 12/15/83 | | 10.2 | | |
| | | | 12/31/83 | | 2.8 | | 8.3 |
| | | | 1/31/84 | | 16.0 | | 14.7 |
| OKANOGAN & METHOW RIVERS | | | | | | | |
| Harts Pass | 20A05 | 6500 | 1/01 | | 13.8 | | 16.7 |
| | GT | | 1/30 | 74 | 20.3 | | 31.3 |
| | | | 2/01 | | 21.7 | | 30.0 |
| Salmon Meadow | 19A02 | 4500 | 12/30/83 | | 13.5 | | 11.2 |
| | GT | | 1/26 | 27 | (7.9) | | |
| | | | 1/29 | | 12.9 | | 19.6 |
| CHELAN LAKE BASIN | | | | | | | |
| Lyman Lake | 20A23 | 5900 | 1/01 | | 30.8 | | 28.4 |
| | GT | | 1/30 | 118 | (38.8) | | |
| | | | 2/01 | | 43.3 | | 37.8 |
| Mirror Lake | 20A39 | 5600 | 1/03 | | 18.5 | | |
| | GT | | 1/30 | 64 | (21.0) | | |
| | | | 1/27 | | 21.5 | | 26.8 |
| Park Creek Ridge | 20A12 | 4600 | 12/30/83 | | 17.8 | | 17.4 |
| | GT | | 1/30 | 68 | (25.5) | | |
| | | | 2/01 | | 27.1 | | 31.4 |
| Rainy Pass | 20A09 | 4780 | 12/30/83 | | 11.5 | | 14.4 |
| | GT | | 1/30 | 49 | (17.5) | | 27.4 |
| | | | | | | | 29.2 |
| ENTIAT RIVER | | | | | | | |
| Pope Ridge | 20B20 | 3450 | 1/01 | | 11.6 | | 10.4 |
| | GT | | 1/30 | 39 | (12.4) | | 15.5 |
| | | | 2/01 | | 12.9 | | 14.8 |
| WENATCHEE RIVER | | | | | | | |
| Blewett Pass | 20B02 | 4270 | 1/01 | | 14.8 | | 9.0 |
| | | | | | | | 12.0 |
| | | | 2/01 | | 13.0 | | 14.6 |
| Lyman Lake | 20A23 | 5900 | 1/01 | | 30.8 | | 28.4 |
| | | | 2/01 | | 43.3 | | 38.2 |
| Stevens Pass | 21B01 | 4070 | 12/30/83 | | 20.2 | | 20.7 |
| | | | 2/01 | | 25.5 | | 18.2 |
| Trough # 2 | 20B25 | 5300 | 1/01 | | 7.7 | | |
| | GT | | 1/28 | 6 | (1.8) | | 13.3 |
| | | | 1/30 | | 1.0 | | 13.9 |

GT = Ground Truth measurement at SNOTEL site

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# SNOTEL READINGS, 1984 -APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| COLOCKUM CREEK | | | | | | | |
| Trough # 2 | 20B25 | 5300 | 1/01 | | 7.7 | | |
| | GT | | 1/28 | 6 | (1.8) | 13.3 | |
| | | | 1/30 | | 1.0 | 13.9 | |
| STEMILT CREEK | | | | | | | |
| Upper Wheeler | 20B07 | 4400 | 1/01 | | 9.6 | 15.3 | |
| | GT | | 1/28 | 30 | (9.0) | | |
| | | | 2/01 | | 9.1 | 22.6 | |
| YAKIMA RIVER | | | | | | | |
| Big Boulder Creek | 21B09 | 3200 | 1/02 | | 12.4 | 11.9 | |
| | | GT | | | | | |
| | | | 2/01 | | 12.7 | 15.9 | |
| Bumping Ridge | 21C38 | 4600 | 1/01 | | 20.8 | | |
| | GT | | | | | 22.4 | |
| | | | 2/01 | | 21.3 | | |
| Corral Pass | 21B13 | 6000 | 1/01 | | 12.7 | 15.1 | |
| | | | 2/01 | | 8.6 | 24.8 | |
| Fish Lake | 21B04 | 3371 | 1/01 | | 17.7 | | |
| | GT | | | | | 21.1 | |
| | | | 2/01 | | 20.1 | | |
| Green Lake | 21C10 | 6000 | 1/01 | | 12.4 | 12.8 | |
| | GT | | | | | 28.3 | |
| | | | 2/01 | | 12.4 | 20.9 | |
| Grouse Camp | 20B11 | 5385 | 1/01 | | 13.7 | 11.9 | |
| | GT | | | | | 18.3 | |
| | | | 2/01 | | 12.0 | 16.2. | |
| Morse Lake | 21C17 | 5400 | 1/01 | | 27.5 | 28.6 | |
| | | | 2/01 | | 32.9 | 48.1 | |
| White Pass E. Side | 21C28A | 4500 | 1/01 | | 14.8 | 10.9 | |
| | GT | | | | | 19.5 | |
| | | | 2/01 | | 16.3 | 19.4 | |

GT = Ground Truth measurement at SNOTEL site

WSFB-X4-L

# SNOTEL READINGS, 1984 -APPENDIX 3

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average + |
| AHTANUM CREEK | | | | | | | |
| Green Lake | 21C10 | 6000 | 1/01 | | 12.4 | 12.8 | |
| | GT | | | | | 28.3 | |
| | | | 2/01 | | 12.4 | 20.9 | |
| TOUCHET RIVER | | | | | | | |
| Touchet # 2 | 17C5 | 5530 | 1/01 | | 13.4 | 14.2 | |
| | GT | | 1/30 | 42 | 15.0 | | |
| | | | 1/30 | | 15.0 | 21.8 | |
| LEWIS RIVER | | | | | | | |
| June Lake | 22C09 | 3200 | 1/01 | | 5.4 | | |
| | | | 2/01 | | | | |
| Lone Pine Shelter | 21C26 | 3800 | 1/01 | | 21.0 | | |
| | | | 2/01 | | | 28.3 | |
| Plains of Abraham | 22C01 | 4400 | 1/01 | | 44.5 | | |
| | | | 2/01 | | 40.0 | | |
| Sheep Canyon | 22C10 | 4050 | 1/01 | | 19.8 | | |
| | | | 1/31 | | 19.2 | | |
| Spencer Meadow | 21C20 | 3400 | 1/01 | | 12.3 | 17.0 | |
| | | | 2/01 | | 12.4 | 21.1 | |
| Surprise Lake | 21C13 | 4250 | 1/01 | | 28.7 | | |
| | GT | | | | | 32.7 | |
| | | | 2/01 | | 33.6 | 31.3 | |
| COWLITZ RIVER | | | | | | | |
| Pigtail Peak | 21C33 | 5900 | 1/01 | | 25.8 | 21.0 | |
| | | | 2/01 | | 29.5 | 36.2 | |
| Potato Hill | 21C14 | 4500 | 1/01 | | 14.0 | | |
| | | | 2/01 | | 14.2 | | |
| Sheep Canyon | 22C10 | 4050 | 1/01 | | 19.8 | | |
| | | | 1/31 | | 19.2 | | |
| Strawberry Landing | 22C08 | 3280 | 1/01 | | | 16.7 | |
| | | | 2/01 | | | 25.5 | |

GT = Ground Truth measurement at SNOTEL sites

WSFB-X4-L

# SNOTEL READINGS, 1984 -APPENDIX 4

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Average † |
| NISQUALLY RIVER | | | | | | | |
| Paradise Park | 21C35 | 5500 | 12/29 | | 42.2 | | |
| | | | 2/01 | | 49.1 | | |
| WHITE RIVER | | | | | | | |
| Corral Pass | 21B13 | 6000 | 1/01 | | 12.7 | 15.1 | |
| | | | 2/01 | | 8.6 | 24.8 | |
| Morse Lake | 21C17 | 5400 | 1/01 | | 27.5 | 28.6 | |
| | | | 2/01 | | 32.9 | 48.1 | |
| GREEN RIVER | | | | | | | |
| Cougar Mountain | 21B42 | 3200 | 12/30/83 | | 14.5 | 4.8 | |
| | | | 1/30 | | 11.0 | 6.0 | |
| Stampede Pass | 21B10 | 3960 | 12/31/83 | | 24.4 | 12.0 | |
| | GT | | | | | 28.5 | |
| | | | 2/01 | | 27.1 | 27.0 | |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows East | 21B55 | 3960 | 12/30/83 | | 27.0 | 22.1 | |
| | | | 2/01 | | 31.1 | 35.9 | |

GT = Ground Truth measurements at SNOTEL sites

# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma
City of Seattle

*Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.*

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROOM 360, U.S. COURT HOUSE
SPOKANE, WASHINGTON 99201

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# COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation , navigation , mining and industry

*"The Conservation of Water begins with the Snow Survey"*

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United States
Department of
Agriculture

**Soil
Conservation
Service**

Spokane,
Washington

# Water Supply Outlook for Washington

as of APRIL 1, 1984

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MAY 08 1984
University of Illinois
at Urbana-Champaign

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil molsture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil molsture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"


## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.


Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE | ADDRESS |
|---|---|
| Alaska | Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504 |
| Arizona | Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025 |
| Colorado (N. Mex.) | P.O. Box 17107, Denver, Colorado 80217 |
| Idaho | Room 345, 304 N. 8th St., Boise, Idaho 83702 |
| Montana | P.O. Box 98, Bozeman, Montana 59715 |
| Nevada | P.O. Box 4850, Reno, Nevada 89505 |
| Oregon | 1220 S. W. Third Ave., Portland, Oregon 97204 |
| Utah | 4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147 |
| Washington | 360 U.S. Court House, Spokane, Washington 99201 |
| Wyoming | P.O. Box 2440, Casper, Wyoming 82601 |

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

# WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS

ISSUED BY

PETER C. MYERS
Chief
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

RELEASED BY

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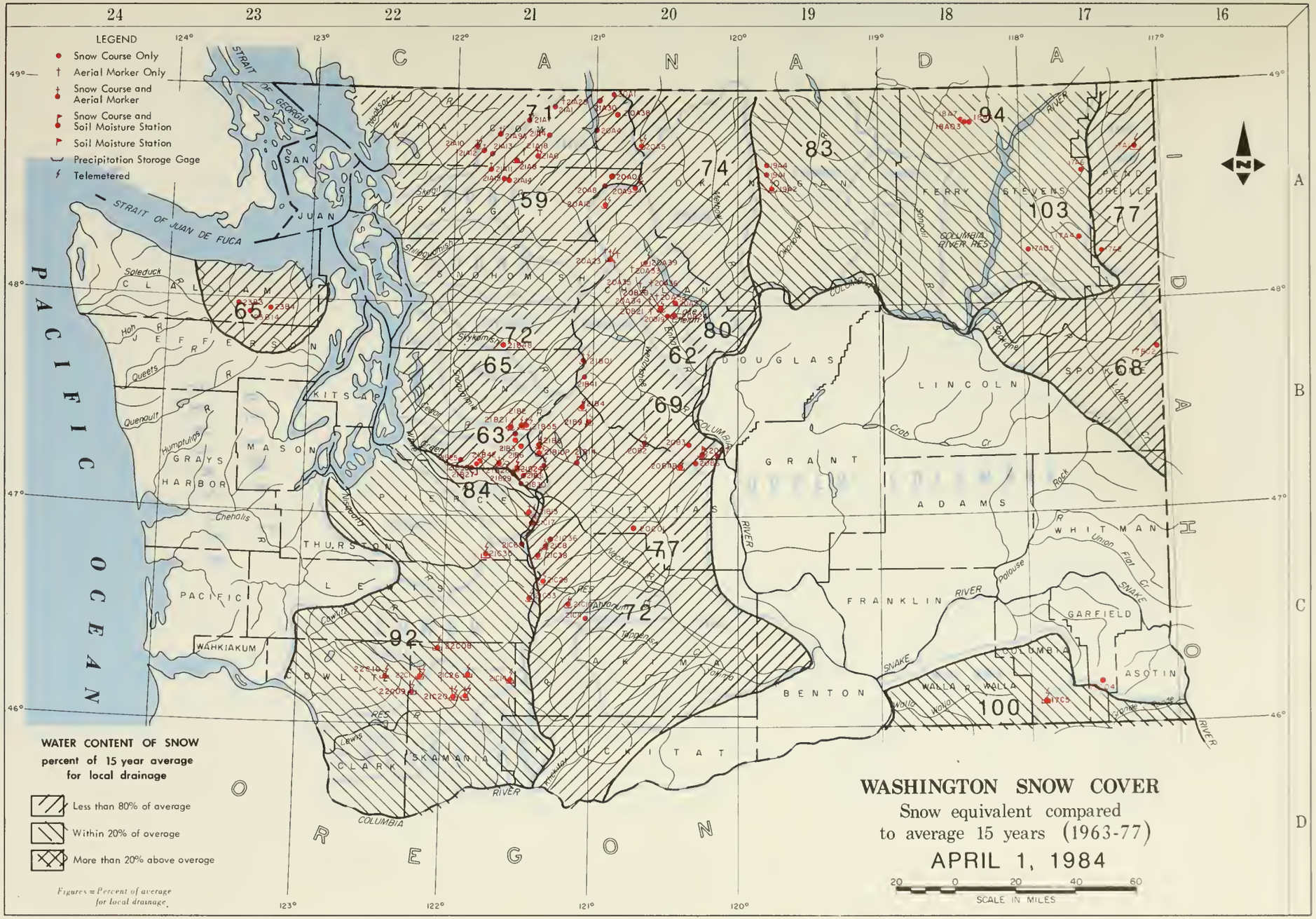
SPOKANE, WASHINGTON 99201

USDA SCS FORT WORTH, TEXAS 1983 M7-OL-2202BC



# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

## UPPER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Pend Oreille River** | | | | | |
| Bayer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| **Kettle River** | | | | | |
| Summit G. S. | 1BA7 | 20 | 39N | 35E | 4600 |
| Butte Creek | 1BA3 | 2B | 39N | 35E | 4070 |
| Goat Creek | 1BA4 | 26 | 39N | 35E | 3595 |
| **Spokane River** | | | | | |
| Ragged Ridge | 17B02 | 12 | 27N | 45E | 3333 |
| **Colville River** | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mountain | 17A5 | 26 | 31N | 38E | 4990 |
| Chewelah | 17A4 | 11 | 32N | 41E | 4925 |
| **Okanogan River** | | | | | |
| Muttan Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Muttan Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salmon Meadows | 19A2SP | 33 | 37N | 24E | 4500 |
| **Methow River** | | | | | |
| Harts Pass | 20A5SP | 7 | 37N | 18E | 6500 |
| **Chelan Lake Basin** | | | | | |
| Lyman Lake | 20A23SP | 18 | 31N | 16E | 5900 |
| Park Creek Ridge | 20A12SP | 18 | 34N | 16E | 4600 |
| Rainy Pass | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirrar Lake | 20A39 | 30 | 31N | 18E | 5600 |
| **Entiat River** | | | | | |
| Brief | 20B19 | 34 | 28N | 19E | 1600 |
| Entiat Meadows | 20A33a | 28 | 31N | 17E | 4540 |
| Entiat River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 18E | 6510 |
| Pape Ridge | 20B20 | 22 | 29N | 18E | 3540 |
| Pope Ridge Snow Pillow | 20B24SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32a | 34 | 30N | 18E | 6725 |
| Shady Pass | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20B21a | 10 | 28N | 18E | 4900 |
| **Wenatchee River** | | | | | |
| Berne-Mill Creek (New) | 21B41SP | 13 | 26N | 14E | 3240 |
| Blewett Pass No. 2 | 20B2SP | 35 | 22N | 17E | 4270 |
| Stevens Poss | 21B1SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| **Squilchuck Creek** | | | | | |
| Beehive Springs | 20B3 | 12 | 21N | 19E | 4400 |
| **Stemilt Creek** | | | | | |
| Stemilt Slide | 20B6 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 20B7SP | 30 | 21N | 20E | 4400 |
| **Yakima River** | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 21B4SP | 2B | 24N | 14E | 3371 |
| Green Lake | 21C10SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20B11SP | 29 | 21N | 19E | 5385 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Morse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 21BBP | 13 | 21N | 11E | 2450 |
| White Pass (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

## LOWER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Asotin Creek** | | | | | |
| Spruce Springs | 17C4 | 9 | 8N | 40E | 5700 |
| **Touchet River** | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| **Lewis River** | | | | | |
| June Lake | 22C09SP | 26 | 8N | 5E | 3200 |
| Lane Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadow | 21C20SP | 16 | 8N | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| **Cowlitz River** | | | | | |
| Cayuse Pass | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Potato Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyon | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C08SP | 9 | 10N | 6E | 3280 |

## PUGET SOUND DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Nisqually River** | | | | | |
| Paradise Park (New) | 21C35SP | 13 | 15N | 8E | 5500 |
| **White River** | | | | | |
| Corral Pass | 21B13SP | 30 | 18N | 11E | 6000 |
| **Green River** | | | | | |
| Airstrip | 21B24P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21B25 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21B42SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21B27 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21B28 | 12 | 20N | 8E | 2100 |
| Lester Creek | 21B29 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21B50 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21B31 | 5 | 19N | 11E | 4700 |
| Stampede Pass | 21B10SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21B30 | 18 | 19N | 11E | 4100 |
| **Cedar River** | | | | | |
| City Cabin | 21B3 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21B21P | 30 | 22N | 10E | 3300 |
| **Snaqualmie River** | | | | | |
| Alpine Meadow | 21B48 | 31 | 27N | 9E | 3500 |
| Olallie Meadows | 21B2P | 19 | 22N | 11E | 3625 |
| Olallie Meodows East | 21B55SP | 20 | 22N | 11E | 3700 |
| **Skagit River** | | | | | |
| Beaver Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Pass | 21A1 | 9 | 39N | 12E | 3680 |
| Brown Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A3B | B | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Baker River** | | | | | |
| Dock Butte | 21A11A | B | 36N | 8E | 3800 |
| Easy Pass | 21A7A | 19 | 39N | 11E | 5200 |
| Jasper Pass | 21A6A | 17 | 38N | 11E | 5400 |
| Marten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadow | 21A10AP | 18 | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |

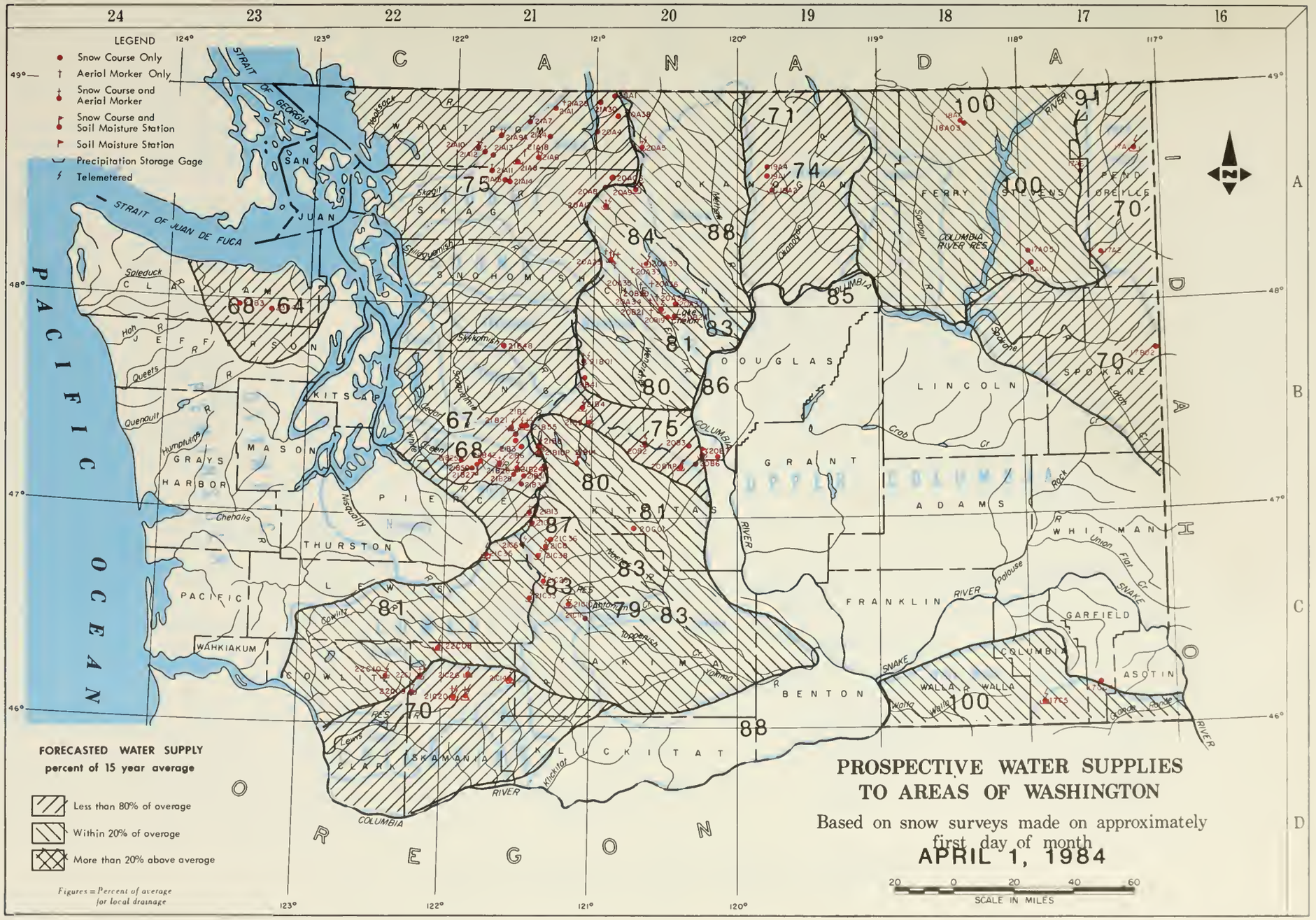
## OLYMPIC PENINSULA

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Dungeness River** | | | | | |
| Deer Park | 23B4 | 1 | 28N | 5W | 5200 |
| **Elwha River** | | | | | |
| Hurricane | 23B3 | 36 | 29N | 7W | 4500 |
| Cox Valley | 23B14 | 31 | 29N | 6W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Marker |
| 21A7M | Snow Course And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

M7-OL-22028D


LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of overage
Within 20% of overage
More than 20% above overage
Figures = Percent of average for local drainage
PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON
Based on snow surveys made on approximately first day of month
APRIL 1, 1984
SCALE IN MILES
CANADA
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
OKANOGAN
FERRY
STEVENS
PEND OREILLE
SPOKANE
LINCOLN
ADAMS
WHITMAN
GARFIELD
ASOTIN
FRANKLIN
BENTON
DOUGLAS
GRANT
WALLA WALLA
COLUMBIA
Nooksack R.
Skagit R.
Stillaguamish R.
Snoqualmie R.
Skykomish R.
Wenatchee R.
Entiat R.
Chelan R.
Methow R.
Okanogan R.
Similkameen R.
Columbia River
Spokane R.
Hoh R.
Queets R.
Quinault R.
Humptulips R.
Chehalis R.
Nisqually R.
Deschutes R.
Cowlitz R.
Lewis R.
Kalama R.
Toppenish Cr.
Satus Cr.
Naches R.
Yakima R.
Palouse R.
Snake R.
Grande Ronde R.
Union Flat Cr.
Crab Cr.
Rock Cr.
Lyon Cr.
Walla Walla R.
Touchet R.
Klickitat R.
Lewis R.
Columbia River
Columbia River Res.
Lake Chelan
Lake Roosevelt
Conconully Res.
Sullivan Lake
Cowlitz Falls Res.
Mayfield Lake
Mossyrock Res.
Riffe Lake
Swift Res.
Yale Lake
Merwin Res.
Kachess Lake
Keechelus Lake
Cle Elum Lake
Rimrock Lake
Bumping Lake
Clear Lake
Tieton Res.
Rainier
Baker
Glacier Peak
Adams
St. Helens
Hood
Jefferson
Three Sisters
Newberry
Crater Lake
Mt. Shasta
Mt. Lassen
Lassen Peak
Mt. Shasta
Mt. Lassen
Lassen Peak

# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **UPPER COLUMBIA DRAINAGE** | | | | | |
| *Pend Oreille River* | | | | | |
| Bayer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| *Kettle River* | | | | | |
| Summit G. S. | 18A7 | 20 | 39N | 35E | 4600 |
| *Spokane River* | | | | | |
| Ragged Ridge | 17B02 | 12 | 27N | 45E | 3333 |
| *Colville River* | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mountain | 17A5 | 26 | 31N | 38E | 4990 |
| Togo | 18A10 | 6 | 29N | 38E | 3370 |
| *Okanogan River* | | | | | |
| Muttan Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Mutton Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salman Meadows | 19A2SP | 33 | 37N | 24E | 4500 |
| *Methow River* | | | | | |
| Harts Pass | 20A5SP | 7 | 37N | 18E | 6500 |
| *Chelan Lake Basin* | | | | | |
| Lyman Lake | 20A23SP | 18 | 31N | 16E | 5900 |
| Park Creek Ridge | 20A12SP | 18 | 34N | 16E | 4600 |
| Rainy Pass | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirror Lake | 20A39 | 30 | 31N | 18E | 5600 |
| *Entiat River* | | | | | |
| Brief | 20B19 | 34 | 28N | 19E | 1600 |
| Entiat Meadows | 20A33a | 28 | 31N | 17E | 4540 |
| Entiat River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 18E | 6510 |
| Pope Ridge | 20820 | 22 | 29N | 18E | 3540 |
| Pope Ridge Snow Pillow | 20824SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32a | 34 | 30N | 18E | 6725 |
| Shady Pass | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20821o | 10 | 28N | 18E | 4900 |
| *Wenatchee River* | | | | | |
| Berne-Mill Creek (New) | 21B41SP | 13 | 26N | 14E | 3240 |
| Blewett Pass No. 2 | 20B2 SP | 35 | 22N | 17E | 4270 |
| Stevens Pass | 2181SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| *Squilchuck Creek* | | | | | |
| Beehive Springs | 2083 | 12 | 21N | 19E | 4400 |
| *Stemilt Creek* | | | | | |
| Stemilt Slide | 20B6 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 2087SP | 30 | 21N | 20E | 4400 |
| *Yakima River* | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9 SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 21B4SP | 28 | 24N | 14E | 3371 |
| Green Lake | 21C10 SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20811 SP | 29 | 21N | 19E | 5385 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Marse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 2188P | 13 | 21N | 11E | 2450 |
| White Pass (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **LOWER COLUMBIA DRAINAGE** | | | | | |
| *Asotin Creek* | | | | | |
| Spruce Springs | 17C4 | 9 | 8N | 40E | 5700 |
| *Touchet River* | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| *Lewis River* | | | | | |
| June Lake | 22C09SP | 26 | 8N | 5E | 3200 |
| Lane Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadow | 21C20SP | 16 | 8N | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| *Cowlitz River* | | | | | |
| Cayuse Pass | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Patato Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyon | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C08SP | 9 | 10N | 6E | 3280 |
| **PUGET SOUND DRAINAGE** | | | | | |
| *Nisqually River* | | | | | |
| Paradise Park (New) | 21C35 SP | 13 | 15N | 8E | 5500 |
| *White River* | | | | | |
| Corral Pass | 21B13 SP | 30 | 18N | 11E | 6000 |
| *Green River* | | | | | |
| Airstrip | 21824P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21825 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21B42SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21827 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21828 | 12 | 20N | 8E | 2100 |
| Lester Creek | 21829 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21850 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21831 | 5 | 19N | 11E | 4700 |
| Stampede Pass | 21810 SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21830 | 18 | 19N | 11E | 4100 |
| *Cedar River* | | | | | |
| City Cabin | 2183 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21821P | 30 | 22N | 10E | 3300 |
| *Snoqualmie River* | | | | | |
| Alpine Meadow | 21848 | 31 | 27N | 9E | 3500 |
| Olallie Meadows | 2182P | 19 | 22N | 11E | 3625 |
| Olallie Meadows East | 21855SP | 20 | 22N | 11E | 3700 |
| *Skagit River* | | | | | |
| Beaver Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Pass | 21A1 | 9 | 39N | 12E | 3680 |
| Brown Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A38 | 8 | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| *Baker River* | | | | | |
| Dock Butte | 21A11A | 8 | 36N | 8E | 3800 |
| Easy Pass | 21A7A | 19 | 39N | 11E | 5200 |
| Jasper Pass | 21A6A | 17 | 38N | 11E | 5400 |
| Marten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadow | 21A10AP | 18 | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |
| **OLYMPIC PENINSULA** | | | | | |
| *Dungeness River* | | | | | |
| Deer Pork | 23B4 | 1 | 28N | 5W | 5200 |
| *Elwha River* | | | | | |
| Hurricane | 2383 | 36 | 29N | 7W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Marker |
| 21A7M | Snow Course And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

# WATER SUPPLY OUTLOOK

State of Washington

April 1, 1984

The water supply forecast for most of Washington continued to deteriorate during March. Water users in the Olympic's and the Puget Sound areas can expect below normal runoff this spring and summer. The mountain snowpack ranges well below average to average. It is below average in the Spokane, Pend Oreille, Yakima, Wenatchee, Entiat and Methow Rivers. The Northwest Cascade slopes show well below average snowpack, with the Skagit having less than 59 of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage is very good for April 1. Streamflow continued above average throughout the state.

## SNOW COVER

Puget Sound Watersheds are well below normal. They range from a low of 59% on the Skagit, to 88% on the White River. Olympic Peninsula streams are also below average with the Elwha and the Dungeness having a snowpack at 65% of normal. The other areas of the state with much below average snowpack are the Spokane and Pend Oreille River drainages which have 68% and 77% of normal. The Entiat River snow courses showed the greatest decline having a 62% of average snow cover.

The Kettle River continues to be near average, as does the Cowlitz River. The Blue Mountain area of the state and the Collvile River have the best snowpack being near 100%. All other areas in the state are between 80 and 90% of average.

## PRECIPITATION

Precipitation during the November-March winter period has been above average over the entire state except the Southwest Cascade area. During this period the Puget Sound area received 57.56 inches, 104% of normal. The Yakima area received 28.14 inches, 102% of normal. Precipitation in the northeastern area was 125% of normal.

## RESERVOIR STORAGE

Stored water supplies are very good for April 1, with all sections of the state reporting above average storage. The Yakima irrigation reservoirs are storing 914,400 acre feet of water compared to the April 1 average of 741,500, or 123% of normal. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 296,400 acre-feet, 101% of normal and Banks Reservoir is at 902,600 acre-feet.

## STREAMFLOW

River flows during March were above average for most of the state. Streams which had above average runoff for March included the Kettle River at 279%, the Okanogan River at 153%, the Chelan River at 136% and the Yakima River at 125%. The Pend Oreille River at 88% was the only major stream reporting below average streamflow.

Forecasts for spring and summer streamflow will be within 20% of average over most of the state. The Puget Sound rivers are still forecast below average, with the Skagit at 75%, the Cedar at 75% and the Dungeness at 71%. The forecasts for the streams in the Yakima Basin remains nearly constant with 80% at Parker and 81% at Cle Elum. Some forecasts for the rest of the state are, the Wenatchee at 80%, the Methow at 80% and the Okanogan at 79%. The Spokane Rivers forecasts have been reduced to 70%.

STREAMFLOW FORECASTS - APRIL 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamfolw figures for 1982 and 1983 are preliminary and subject to revision.

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| **COLUMBIA BASIN** | | | | | | | |
| COLUMBIA RIVER SYSTEM /1/ | | | | | | | |
| Columbia River | 40600 | 91 | Apr-Sept | 43225 | 48575 | 48531 | 44605 |
| at Birchbank | 32500 | 91 | Apr-July | 34569 | 38210 | 38501 | 35705 |
| | 23700 | 91 | Apr-June | 24281 | 27454 | 27002 | 26027 |
| Columbia River | 56800 | 85 | Apr-Sept | 46662 | 56425 | 70303 | 66841 |
| at Grand Coulee | 47700 | 85 | Apr-July | 34933 | 43821 | 58525 | 56169 |
| | 37400 | 85 | Apr-June | 26597 | 32610 | 44235 | 44036 |
| Columbia River bl. | 62600 | 86 | Apr-Sept | 44560 | 79386 | 77308 | 72781 |
| Rock Island Dam | 53000 | 86 | Apr-July | 58672 | 66629 | 64689 | 61601 |
| | 41600 | 86 | Apr-June | 69844 | 50985 | 49348 | 48384 |
| Columbia River at | 88300 | 88 | Apr-Sept | 103682 | 118503 | 96188 | 101000 |
| The Dalles, OR | 74000 | 86 | Apr-July | 88273 | 101631 | 81125 | 86500 |
| | 60000 | 86 | Apr-June | 70038 | 80122 | 63521 | 70100 |
| PEND OREILLE RIVER SYSTEM | | | | | | | |
| Pend Oreille River | 10800 | 70 | Apr-Sept | 12841 | 17721 | 13896 | 15425 |
| bl. Box Canyon | 9900 | 70 | Apr-July | 11482 | 16324 | 13179 | 14156 |
| | 8560 | 70 | Apr-June | 9226 | 13306 | 11594 | 12227 |
| KETTLE RIVER SYSTEM | | | | | | | |
| Kettle River | 1830 | 100 | Apr-Sept | 2709 | 2330 | 2184 | 1829 |
| nr. Laurier | 1740 | 100 | Apr-July | 2534 | 2174 | 2013 | 1738 |
| | 1580 | 100 | Apr-June | 2251 | 1747 | 1657 | 1581 |
| Colville River | 134 | 100 | Apr-Sept | 182 | 160 | 125 | 134 |
| at Kettle Falls | 123 | 100 | Apr-July | 161 | 146 | 111 | 123 |
| | 114 | 100 | Apr-June | 144 | 132 | 95 | 114 |

/1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Fore-cast period | Seasonal Streamflow in Thousands of Acre-Feet 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| SPOKANE RIVER SYSTEM | | | | | | | |
| Spokane River /2/ | 2000 | 70 | Apr-Sept | M | M | 2238 | 2848 |
| at Post Falls, ID | 1920 | 70 | Apr-July | M | M | 2145 | 2754 |
| OKANOGAN RIVER SYSTEM | | | | | | | |
| Similkameen River | 1040 | 71 | Apr-Sept | 1490 | 1638 | 1241 | 1462 |
| nr. Nighthawk | 970 | 71 | Apr-July | 1356 | 1491 | 1118 | 1365 |
| | 825 | 71 | Apr-June | 1155 | 1166 | 930 | 1161 |
| Okanogan River | 1210 | 74 | Apr-Sept | 2170 | 2046 | 1631 | 1644 |
| nr. Tonasket | 1110 | 74 | Apr-July | 1891 | 1712 | 1416 | 1497 |
| | 930 | 74 | Apr-June | 1569 | 1306 | 1107 | 1262 |
| METHOW RIVER SYSTEM | | | | | | | |
| Methow River | 864 | 88 | Apr-Sept | 1354 | 1203 | 786 | 980 |
| nr. Pateros | 800 | 88 | Apr-July | 1243 | 1120 | 724 | 908 |
| | 680 | 88 | Apr-June | 1094 | 918 | 602 | 773 |
| CHELAN RIVER SYSTEM | | | | | | | |
| Chelan River | 1000 | 83 | Apr-Sept | 1261 | 1376 | 916 | 1203 |
| at Chelan /3/ | 875 | 83 | Apr-July | 1104 | 1223 | 798 | 1055 |
| | 685 | 83 | Apr-June | 901 | 958 | 621 | 826 |
| Stehekin River | 720 | 84 | Apr-Sept | M | 938 | 662 | 860 |
| at Stehekin | 610 | 84 | Apr-July | 727 | 800 | 543 | 727 |
| | 465 | 84 | Apr-June | 572 | 603 | 403 | 553 |
| Entiat River | 190 | 81 | Apr-Sept | 292 | 282 | 186 | 235 |
| nr. Ardenvoir | 173 | 81 | Apr-July | 263 | 258 | 168 | 213 |
| | 140 | 81 | Apr-June | 221 | 206 | 137 | 172 |
| WENATCHEE RIVER SYSTEM | | | | | | | |
| Wenatchee River | 1020 | 80 | Apr-Sept | M | M | M | 1270 |
| nr. Plain | 910 | 80 | Apr-July | M | M | M | 1136 |
| | 720 | 80 | Apr-June | M | M | M | 899 |
| Wenatchee River | 1370 | 80 | Apr-Sept | 1590 | 2013 | 1188 | 1712 |
| at Peshastin | 1235 | 80 | Apr-July | 1432 | 1791 | 1075 | 1545 |
| | 990 | 80 | Apr-June | 1191 | 1429 | 869 | 1237 |
| Stemilt Basin | 104 * | 75 | May-Sept | M | M | M | **138 |
| nr. Wenatchee | | | | | | | |
| Icicle Creek | 291 | 79 | Apr-Sept | M | M | M | **370 |
| nr. Leavenworth | 270 | 79 | Apr-July | M | M | M | **340 |
| | 213 | 79 | Apr-June | M | M | M | **270 |

* Thousands of Miners' Inches.

** Average computed for 1963-1977.

/2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho. Observed flow corrected for storage in Coeur d'Alene Lake.

/3/ Observed flow corrected for storage in Lake Chelan.

| Basin, Stream and Station | Seasonal Streamflow in Thousands of Acre-Feet: Forecast Runoff 1984 | % 20-Yr. Avg. | Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| YAKIMA RIVER SYSTEM | | | | | | | |
| Yakima River | 116 | 83 | Apr-Sept | 109 | 152 | 95 | 139 |
| nr. Martin /4/ | 107 | 83 | Apr-July | 96 | 138 | 82 | 128 |
| | 93 | 83 | Apr-June | 81 | 121 | 73 | 111 |
| Yakima River | 760 | 81 | Apr-Sept | 733 | 1100 | 700 | 943 |
| at Cle Elum /5/ | 688 | 81 | Apr-July | 659 | 1010 | 643 | 854 |
| | 592 | 81 | Apr-June | 589 | 883 | 563 | 734 |
| Yakima River | 1680 | 80 | Apr-Sept | 2221 | 2434 | 1194 | 2096 |
| nr. Parker /6/ | 1520 | 80 | Apr-July | 1958 | 2193 | 1059 | 1898 |
| | 1330 | 80 | Apr-June | 1722 | 1909 | 961 | 1667 |
| Kachess River | 100 | 83 | Apr-Sept | 105 | 134 | 81 | 121 |
| nr. Easton /7/ | 95 | 83 | Apr-July | 96 | 126 | 72 | 115 |
| | 84 | 83 | Apr-June | 84 | 110 | 66 | 101 |
| Cle Elum River | 400 | 86 | Apr-Sept | 421 | 516 | 313 | 463 |
| nr. Roslyn /8/ | 365 | 86 | Apr-July | 381 | 468 | 282 | 422 |
| | 305 | 86 | Apr-June | 324 | 392 | 244 | 353 |
| Bumping River /9/ | 124 | 87 | Apr-Sept | 137 | 161 | 78 | 142 |
| nr. Nile | 112 | 87 | Apr-July | 128 | 147 | 70 | 129 |
| | 93 | 87 | Apr-June | 109 | 123 | 63 | 107 |
| American River | 103 | 83 | Apr-Sept | M | 140 | 63 | 124 |
| nr. Nile | 94 | 83 | Apr-July | M | 130 | 58 | 113 |
| | 78 | 83 | Apr-June | M | 109 | 51 | 94 |
| Tieton River /10/ | 210 | 85 | Apr-Sept | M | M | 148 | 246 |
| at Tieton Dam | 176 | 85 | Apr-July | M | M | 131 | 207 |
| | 140 | 85 | Apr-June | M | M | 108 | 165 |
| Naches River /11/ | 700 | 81 | Apr-Sept | 966 | 998 | 419 | 867 |
| nr. Naches | 635 | 81 | Apr-July | 881 | 945 | 380 | 784 |
| | 540 | 81 | Apr-June | 770 | 775 | 339 | 667 |
| Ahtanum Creek /12/ | 37 | 79 | Apr-Sept | M | M | M | 47 |
| Nr. Tampico | 34 | 79 | Apr-July | M | M | M | 43 |
| | 29 | 79 | Apr-June | M | M | M | 37 |

/4/ Observed flow correted for storage in Lake Keechelus.
/5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.
/6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
/7/ Observed flow corected for storage in Lake Kachess.
/8/ Observed flow corrected for storage in Lake Cle Elum.
/9/ Observed flow corrected for storage in Bumping Lake.
/10/ Observed flow corrected for storage in Rimrock Lake.
/11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
/12/ Observed flow of North and South Forks (Combined).

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Seasonal Streamflow in Thousands of Acre-Feet: Fore-cast period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| **LOWER COLUMBIA RIVER SYSTEM** | | | | | | | |
| Mill Creek | 17.5 | 100 | Apr-Sept | 13.48 | 24.62 | 28.5 | **17.50 |
| at Walla Walla | 17.3 | 100 | Apr-July | 13.39 | 24.48 | 28.5 | **17.33 |
| | 17.2 | 100 | Apr-June | 13.36 | 21.63 | 27.3 | **17.15 |
| Lewis River | 875 | 70 | Apr-Sept | 1255 | 1170 | 1096 | 1249 |
| at Ariel /13/ | 760 | 70 | Apr-July | 1046 | 1030 | 971 | 1086 |
| | 673 | 70 | Apr-June | 821 | 927 | 865 | 961 |
| Cowlitz River /14/ | 1650 | 81 | Apr-Sept | 1935 | 4936 | M | 2038 |
| bl. Mayfield Dam | 1440 | 81 | Apr-July | 1754 | 1963 | M | 1778 |
| | 1220 | 81 | Apr-June | 1424 | 1722 | M | 1502 |
| Cowlitz River /14/ | 2000 | 75 | Apr-Sept | 2618 | 2655 | 2390 | 2673 |
| at Castle Rock | 1740 | 75 | Apr-July | 2195 | 2363 | 2125 | 2323 |
| | 1485 | 75 | Apr-June | 1739 | 2080 | 1875 | 1980 |
| **OLYMPIC PENINSULA** | | | | | | | |
| **DUNGENESS RIVER SYSTEM** | | | | | | | |
| Dungeness River | 100 | 63 | Apr-Sept | 197 | 196 | 109 | 160 |
| nr. Sequim | 82 | 63 | Apr-July | 158 | 163 | 88 | 130 |
| | 61 | 63 | Apr-June | 117 | 117 | 70 | 97 |
| **ELWHA RIVER SYSTEM** | | | | | | | |
| Elwha River | 375 | 68 | Apr-Sept | 538 | 607 | 380 | **553 |
| nr. Port Angeles | 308 | 68 | Apr-July | 448 | 512 | 316 | **454 |
| **PUGET SOUND** | | | | | | | |
| **SKAGIT RIVER SYSTEM** | | | | | | | |
| Skagit River /15/ | 1770 | 75 | Apr-Sept | 1531 | 1880 | 1773 | **2356 |
| at Newhalem | 1480 | 75 | Apr-July | 1061 | 1439 | 1431 | **1972 |
| | 1115 | 75 | Apr-June | 698 | 1004 | 1064 | **1485 |
| **GREEN RIVER SYSTEM** | | | | | | | |
| Green River bl. | 215 | 68 | Apr-Sept | 190 | 227 | 268 | **316 |
| Howard Hanson Dam/16/ | 193 | 68 | Apr-July | 145 | 195 | 245 | **284 |
| | 174 | 68 | Apr-June | 107 | 174 | 219 | **256 |
| **CEDAR RIVER SYSTEM** | | | | | | | |
| Cedar River | 62 | 67 | Apr-Sept | 66 | 80 | 74 | **93 |
| nr. Cedar Falls | | | | | | | |

/13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
/14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.
/15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
/16/ Observed flow corrected for storage in Howard Hanson Dam.

## COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of washington stream basins presents the water content of the snow about April 1, 1984, as percent of the same date in 1983 and 1982 and average of record.

| Tributary Basin | No. of Courses | 1984 Snow Water Expressed 1983 | 1982 | 1961-80 Ave. |
|---|---|---|---|---|
| **UPPER COLUMBIA BASIN** | | | | |
| Pend Oreille | 12 | 82 | 87 | 77 |
| Kettle | 7 | 84 | 88 | 90 |
| Colville | 3 | 128 | 110 | 103 |
| Spokane | 6 | 86 | 83 | 68 |
| Okanogan | 23 | 78 | 86 | 83 |
| Methow | 2 | 53 | 60 | 74 |
| Chelan | 3 | 83 | 93 | 80 |
| Entiat | 9 | 54 | 60 | 62 |
| Wenatchee | 7 | 94 | 97 | 69 |
| Yakima | 17 | 96 | 100 | 77 |
| Antanum | 2 | 81 | 114 | 72 |
| **LOWER COLUMBIA BASIN** | | | | |
| Cowlitz | 2 | 109 | 127 | 92 |
| **PUGET SOUND** | | | | |
| White | 3 | 99 | 115 | 84 |
| Green | 10 | 120 | 128 | 63 |
| Snoqualmie | 1 | 93 | 65 | 65 |
| Skykomish | 2 | 109 | 92 | 72 |
| Skagit | 15 | 82 | 79 | 59 |
| Baker | 8 | 84 | 91 | 71 |
| **OLYMPIC PENNINSULA** | | | | |
| Morse | 1 | 77 | 82 | 79 |
| Elwha | 1 | 71 | 67 | 60 |
| Dungeness | 1 | 49 | 53 | 55 |

RESERVOIR STORAGE - 1000 Acre Feet

| BASIN OR STREAM | RESERVOIR | USABLE 1/ CAPACITY | 1984 | Measured (April) 1983 | 1982 | Normal* |
|---|---|---|---|---|---|---|
| | | COLUMBIA | | | | |
| Spokane | Coeur d'Alene Lake | 225.1 | 194.4 | 163.3 | 166.7 | 121.6 |
| Columbia | Franklin D. Roosevelt Lake | 5232.0 | 4455.5 | 1864.1 | 1094.0 | 1260.0 |
| Columbia | Banks Lake | 714.9 | 864.8 | 690.9 | 682.9 | 590.8 |
| Okanogan | Conconully Reservoir | 13.0 | 13.0 | 13.0 | 11.5 | 7.2 |
| Okanogan | Conconully Lake | 10.5 | 10.4 | 10.4 | 9.1 | 7.5 |
| Chelan | Lake Chelan | 676.1 | 296.4 | 295.1 | 319.9 | 294.2 |
| | | YAKIMA | | | | |
| Yakima | Keechelus Lake | 157.8 | 145.7 | 122.3 | 142.5 | 108.8 |
| Kachess | Kachess Lake | 239.0 | 221.6 | 223.3 | 203.6 | 189.8 |
| Cle Elum | Lake Cle Elum | 436.9 | 363.2 | 364.4 | 148.5 | 292.1 |
| Bumping | Bumping Lake | 33.7 | 17.6 | 7.0 | 5.9 | 8.6 |
| Tieton | Rimrock Lake | 198.0 | 166.3 | 145.3 | 157.2 | 142.2 |
| | | PUGET SOUND | | | | |
| Skagit | Ross Reservoir | 1404.1 | 887.3 | 712.9 | 701.5 | 754.4 |
| Skagit | Diablo Reservoir | 90.6 | 83.8 | 88.0 | 86.1 | 85.7 |
| Skagit | Gorge Reservoir | 9.8 | 7.5 | 8.4 | 7.8 | 8.0 |

1/ Based on Active Storage
* 15-yr. Average 1963-1977

## PRECIPITATION 1/

Division Average Observations and Departures

| Drainage Divisions | Fall Sept-Oct 1983 2/ Observed | Fall Departures | Winter Nov. 1983 - Mar. 1984 2/ Observed | Winter Departures |
|---|---|---|---|---|
| Northeastern Wash | 1.55 | -1.55 | 11.78 | +2.38 |
| Southeastern Wash | 2.54 | -0.06 | 12.22 | +1.79 |
| East Slope Cascades | 3.76 | -0.99 | 28.14 | +0.61 |
| North Central Wash | 1.45 | -0.14 | 7.42 | +0.88 |
| Northwest Cascades | 7.97 | -5.24 | 57.50 | +2.11 |
| Southwest Cascades | 5.36 | -3.32 | 40.99 | -0.65 |

Northeastern Washington - Lower Spokane, Colville, Sandpoil, and Lower Kettle Drainages

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages

East Slope Cascades - Yakima, Wenatachee, and Chelan Drainages

North Central Washington - Methow and Okanogan Drainages

Northwest Slope Cascades - Puget Sound Drainages

Southwest Slope Cascades - Lower Columbia Drainages

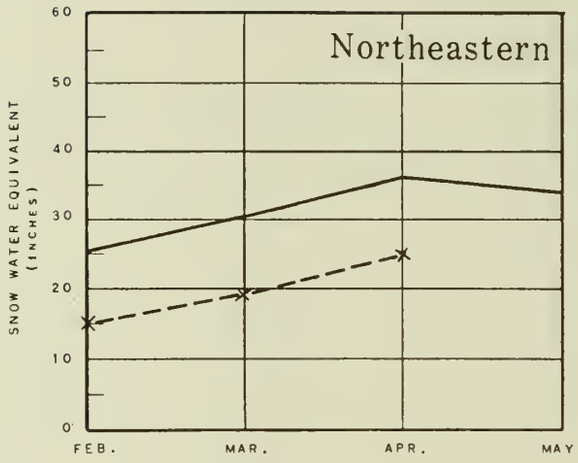
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service

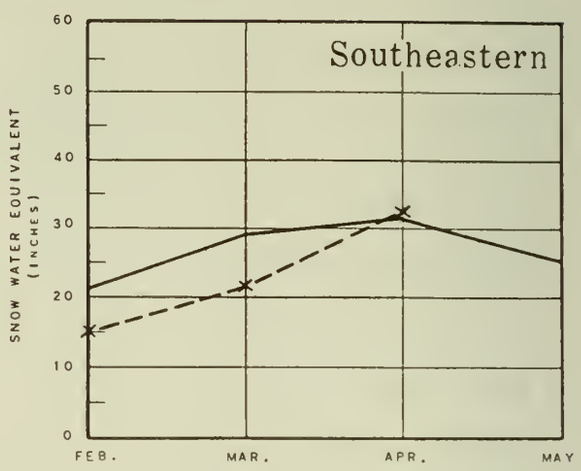
2/ - Departure from 15-year (1958-1972) drainage division average

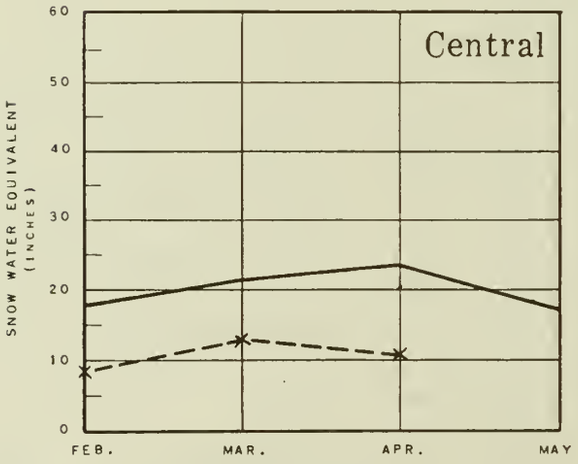
# WASHINGTON SNOW COVER

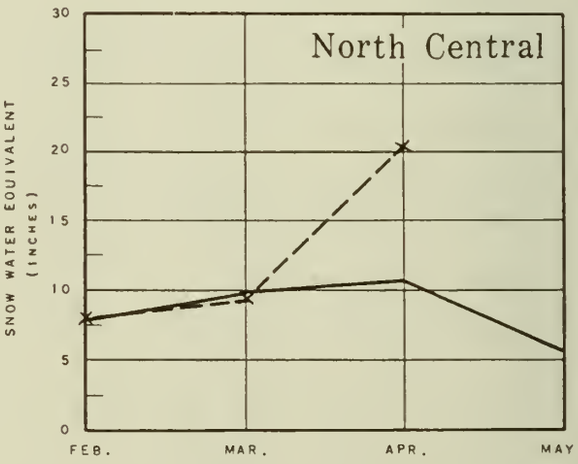
**1984**

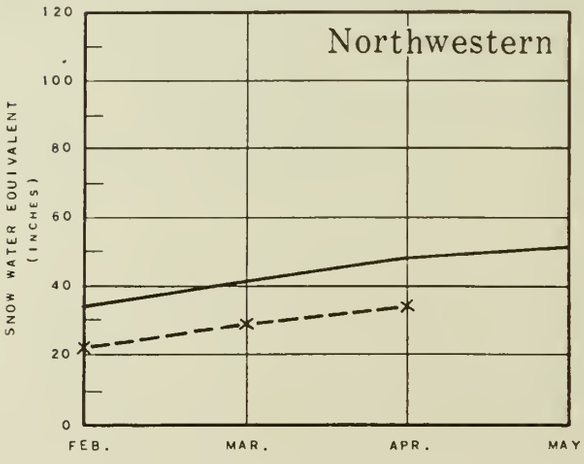
## DRAINAGE AREAS

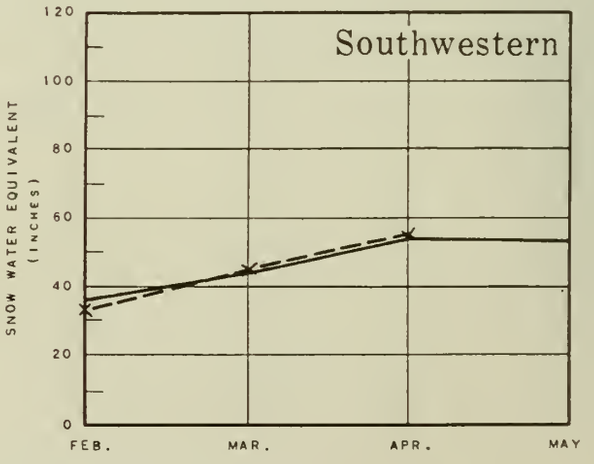



**Average** ——————
**1984** - - - - - - -

*Selected Snow Survey Courses by Soil Conservation Service*

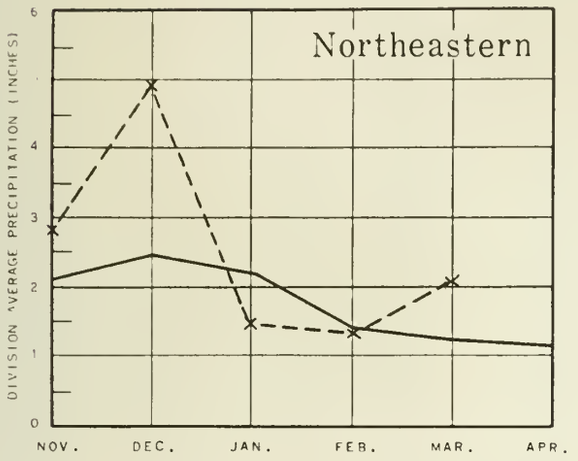


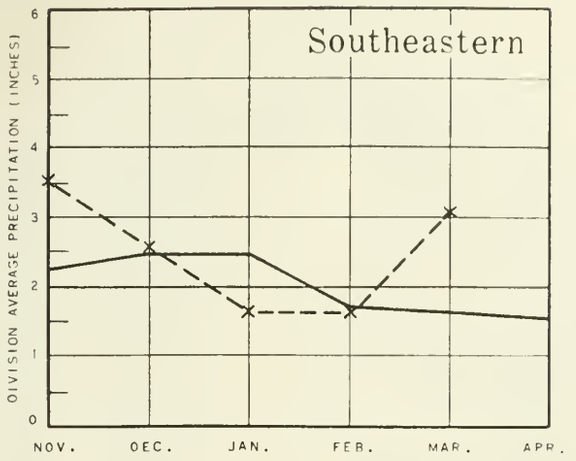
M7-L-22028G

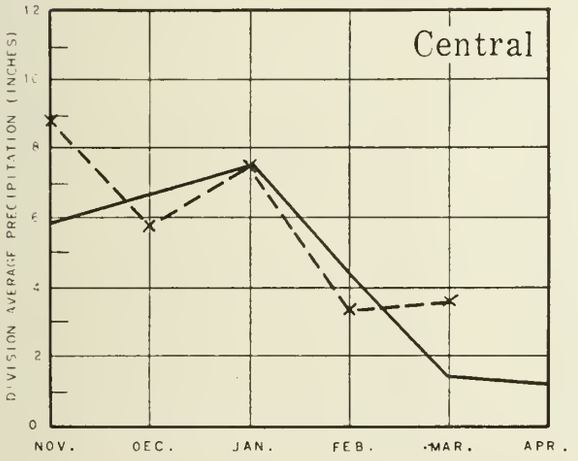
# WASHINGTON VALLEY PRECIPITATION

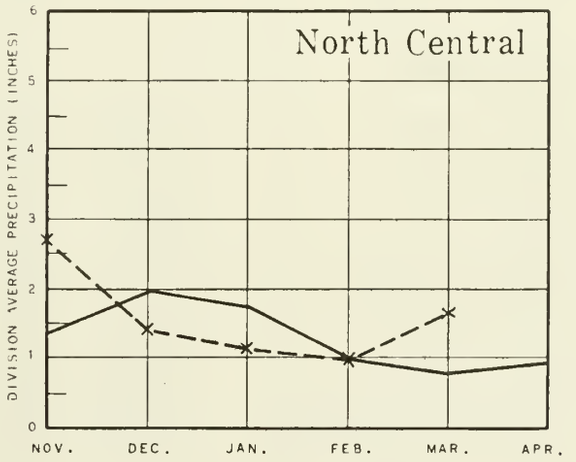
**1984**

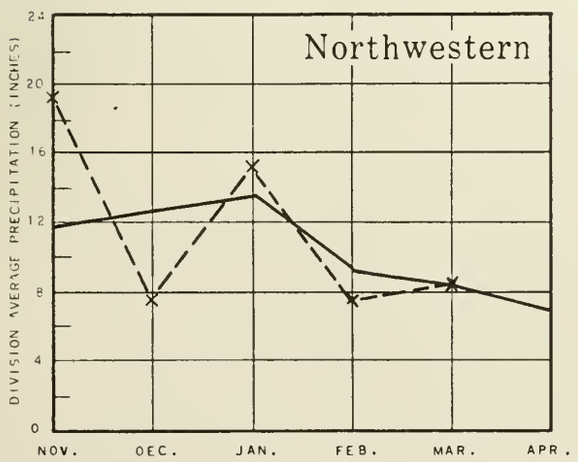
## DRAINAGE AREAS

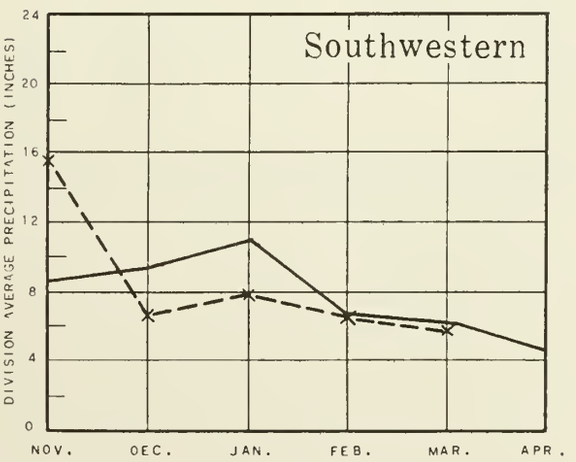



**Average** ———
**1984** - - - - - -

*Preliminary Analysis by National Weather Service*



**NOTE: Precipitation to end of month**

WSFB-X4-L

# SNOW DATA TO APRIL 1, 1984 - APPENDIX 1

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| **UPPER COLUMBIA DRAINAGE** | | | | | | | |
| **PEND OREILLE RIVER** | | | | | | | |
| Benton Meadow | 16A02 | 2344 | 3/30 | 0 | 0.0 | 0.0 | 4.9 |
| Benton Spring | 16A03 | 4900 | 3/30 | 47 | 15.3 | 22.0 | 19.8 |
| Boyer Mtm | 17A02 | 5250 | 4/02 | 68 | 25.2 | 29.8 | 27.0 |
| Bunchgrass Meadow | 17A01 | 5000 | 3/30 | 78 | 28.5 | 27.1 | 30.6 |
| Chewelah | 17A04 | 4925 | 3/31 | 50 | | 17.1 | 14.7 |
| Heart Lake Trail | 14C10 | 4800 | 4/02 | 40 | 15.8 | 15.4 | 23.8 |
| Hoodoo Basin | 15C10 | 6000 | 4/02 | 101 | 39.3 | 46.2 | 53.6 |
| Hoodoo Creek | 15C01 | 5900 | 4/02 | 94 | 36.2 | 41.4 | 49.9 |
| Lookout | 15B02 | 5250 | 3/30 | 69 | 25.4 | 29.0 | 38.6 |
| Nelson | 2D04CA | 3050 | 3/29 | 26 | 8.8 | 13.5 | 15.6 |
| Schweitzer Bowl | 16A06 | 4500 | 3/29 | 64 | 22.8 | 40.1 | 30.2 |
| Schweitzer Ridge | 16A05 | 6100 | 3/29 | 107 | 42.7 | 49.0 | 47.9 |
| **KETTLE RIVER** | | | | | | | |
| Barnes Creek | 2B06CA | 5300 | 3/27 | 61 | 18.9 | 18.9 | 20.9 |
| Big White Mtn. | 2E03CA | 5500 | 3/30 | 63 | 20.4 | 24.5 | 20.6 |
| Butte Creek | 18A03 | 4070 | 3/31 | 33 | 12.0 | 11.3 | 8.6 |
| Carmi | 2E02CA | 4100 | 3/31 | 20 | 5.7 | 6.5 | 6.6 |
| Farron #1 | 2B02CA | 4000 | Not Measured | | | 13.6 | 9.4 |
| Farron #2 | 2.b02aC | 4000 | 3/29 | 38 | 13.3 | 17.9 | 13.1 |
| Goat Creek | 18A04 | 3595 | 3/31 | Trace | 0.1 | | 5.5 |
| Moashee Pass | 2E01CA | 4500 | 3/29 | 40 | 12.6 | 12.9 | 14.9 |
| Summit G.S. | 18A05 | 2150 | 3/31 | 34 | 11.4 | 8.1 | 7.3 |
| Trapping Creek Lower | 2E05CA | 3050 | 3/31 | 8 | 2.6 | 2.5 | 3.9 |
| Trapping Creek Upper | 2E04CA | 4450 | 3/30 | 27 | 8.3 | 10.7 | 10.2 |
| **COLVILLE RIVER** | | | | | | | |
| Baird | 17A06 | 3215 | 3/31 | 17 | 5.8 | 4.5 | 5.7 |
| Chewelah | 17A04 | 4925 | 3/31 | 50 | 17.1 | | 14.7 |
| Togo | 18A10 | 3370 | 3/31 | 33 | 11.4 | | 12.6 |

# Average based on 1961-1980 averages.

WSFB-44-L

SNOW DATA TO APRIL 1, 1984 - APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| SPOKANE RIVER | | | | | | | |
| Above Burke | 15B08 | 4100 | 3/30 | 37 | 14.2 | 15.4 | 24.0 |
| 4th of July Summit | 16B03 | 3100 | 3/28 | 14 | 5.0 | 0.0 | 7.9 |
| Lookout | 15B02 | 5250 | 3/30 | 69 | 25.4 | 29.0 | 36.3 |
| Mosquito Ridge | 16A04 | 5110 | 3/31 | 78 | 28.7 | 42.6 | 38.9 |
| Sherwin | 16C01 | 3200 | 3/30 | 26 | 9.2 | 3.6 | 13.2 |
| Sunset | 15B09A | 5600 | 3/31 | 64 | 22.6 | 35.5 | 33.1 |
| NEWMAN LAKE | | | | | | | |
| Ragged Ridge | 17B02 | 3333 | 3/01 | 0 | 0.0 | 0.0 | New |
| OKANOGAN RIVER | | | | | | | |
| Aberdeen Lake | 1F01CA | 4300 | 3/30 | 16 | 4.6 | 7.6 | 6.2 |
| Blackwall Peak | 2G03CA | 6250 | 4/02 | 65 | 24.9 | 34.5 | 34.9 |
| Brenda Mine | 2F18CA | 4800 | 3/29 | 44 | 13.2 | 13.5 | 13.9 |
| Brookmere | 1C01CA | 3200 | 3/31 | 12 | 4.2 | 7.8 | 9.5 |
| Enderby | 1F04CA | 6250 | 3/29 | 107 | 40.0 | 43.7 | 38.9 |
| Esperon Creek Lower | 2F15CA | 4400 | Not Measured | | | | 7.8 |
| Esperon Creek Middle | 2F15CA | 4700 | " " | | | | 10.2 |
| Esperon Creek Upper | 2F13CA | 5400 | " " | | | | 10.6 |
| Grayback Reservoir | 2F08CA | 5225 | 3/29 | 43 | 11.6 | 11.5 | 9.3 |
| Hamilton Hill | 2G06CA | 4900 | 4/03 | 24 | 7.4 | 12.4 | 15.8 |
| Harts Pass | 20A05A | 6500 | 3/29 | 97 | 33.1 | 42.2 | 46.4 |
| Isintok Lake | 2F11CA | 6300 | 3/31 | 20 | 5.5 | 7.4 | 8.3 |
| Lost Horse Mountain | 2G04CA | 7000 | Not Measured | | | 8.0 | 8.5 |
| McCulloch | 2F03CA | 4200 | 3/29 | 17 | 5.0 | 6.1 | 6.7 |
| Missezula Mtn. | 2G05CA | 5100 | Not Measured | | | 8.6 | 9.1 |
| Mission Creek | 2F05CA | 6000 | 3/29 | 65 | 20.2 | 21.4 | 20.2 |
| Monashee Pass | 2E01CA | 4500 | 3/29 | 39 | 12.6 | 12.9 | 14.9 |
| Mount Kobau | 2F12CA | 5960 | 3/30 | 40 | 10.9 | 18.1 | 12.8 |

# Average based on 1961-1980 averages.

# SNOW DATA TO APRIL 1, 1984 - APPENDIX 3

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| **OKANOGAN RIVER (CONT.)** | | | | | | | |
| Mutton Creek No. 1 | 19A01 | 5700 | Not Measured | | | | 11.8 |
| Mutton Creek No.2 SP | 19A11 | 6000 | Not Measured | | | | New |
| Nickel Plate | 2G02CAN | 6200 | 3/29 | 24 | 6.7 | 7.6 | 8.3 |
| Oyama Lake | 2F19CAN | 4400 | 3/29 | 23 | 6.3 | 8.9 | 6.7 |
| Postill Lake | 2F07CAN | 4500 | 3/29 | 28 | 8.3 | 10.1 | 9.1 |
| Rusty Creek | 19A03 | 4000 | 3/30 | 16 | 6.1 | 7.4 | 6.6 |
| Salmon Meadows | 19A02 | 4500 | Not Measured | | 9.3 | 13.2 | 9.3 |
| Silver Star Mountain | 2F10CAN | 6050 | 3/31 | 77 | 28.0 | 34.6 | 28.6 |
| Summerland Reservoir | 2F02CAN | 4200 | 3/31 | 25 | 7.8 | 10.0 | 9.4 |
| Sunday Summit | 2G01CAN | 4300 | 4/02 | 3 | .4 | 1.4 | 5.2 |
| Trout Creek | 2F01CAN | 4700 | 3/26 | 15 | 3.5 | 5.8 | 7.6 |
| Vaseux Creek | 2F20CAN | 4600 | 3/29 | 27 | 6.9 | 8.9 | 6.7 |
| White Rocks Mountain | 2F09CAN | 6000 | 3/30 | 67 | 23.9 | 30.2 | 23.5 |
| **METHOW RIVER** | | | | | | | |
| Harts pass | 20A05A | 6500 | 3/29 | 97 | 33.1 | 42.2 | 46.4 |
| Mutton Creek NO. 1 | 19A01 | 5700 | Not Measured | | | 16.1 | 11.8 |
| Mutton Creek No. 2 SP | 19A11 | 6000 | Not Measured | | | | New |
| Rusty Creek | 19A03 | 4000 | 3/30 | 16 | 6.1 | 7.4 | 6.6 |
| Salmon Meadows | 19A02 | 4500 | Not Measured | | | 13.2 | 9.3 |
| **CHELAN LAKE BASIN** | | | | | | | |
| Cloudy Pass + | 20A22 | 6500 | Not Measured | | | | 35.2 |
| Lyman Lake | 20A23 | 5900 | 3/27 | 137 | 54.6 | 61.3 | 61.8 |
| Little Meadows + | 20A24a | 5275 | Not Measured | | | 37.6 | 37.6 |
| Mirror Lake | 30A39 | 5600 | 3/27 | 79 | 26.7 | 36.9 | New |
| Park Creek Ridge | 20A12 | 4600 | 3/27 | 86 | 34.8 | 43.7 | 45.5 |
| Rainy Pass | 20A09 | 4780 | 3/29 | 79 | 30.0 | 35.4 | 41.8 |

# Average based on 1961-1980 averages.
+ Aerial stadia observation.

WSFB-X4-L

SNOW DATA TO APRIL 1, 1984 - APPENDIX 4

**SNOW**

| DRAINAGE BASIN and or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) Last Year | Water Content (Inches) Average # |
| ENTIAT RIVER | | | | | | | |
| Brief | 20B19 | 1600 | 3/30 | 0 | 0.0 | 0.0 | 3.8 |
| Entiat Meadows + | 20A33 | 4540 | 3/30 | 75 | 26.2 | 59.2 | 49.3 |
| Entiat River Trail + | 20A34 | 3325 | 3/30 | 25 | 8.2 | 21.0 | 19.5 |
| Fox Camp + | 20A36 | 6510 | 3/30 | 100 | 40.0 | 81.6 | 59.0 |
| Pope Ridge | 20B20 | 3450 | 3/30 | 40 | 13.7 | 18.7 | 18.6 |
| Pugh Ridge + | 20A32 | 6725 | 3/30 | 63 | 23.3 | 48.4 | 38.5 |
| Shady Pass | 20A37 | 6200 | 3/30 | 66 | 24.4 | 33.3 | 31.4 |
| Snow Brushy + | 20A35 | 3910 | 3/30 | 74 | 27.4 | 41.2 | 38.9 |
| Tommy Creek + | 20B21 | 4900 | 3/30 | 43 | 14.2 | 30.4 | 25.9 |
| WENATCHEE RIVER | | | | | | | |
| Berne Mill Creek | 21B23 | 3170 | 3/29 | 53 | 18.8 | 23.4 | 28.7 |
| Berne Mill Creek SP | 21B41 | 3240 | 3/29 | 35 | 13.6 | 20.1 | |
| Blewett Pass No. 2 | 20B02 | 4270 | 3/27 | 32 | 11.8 | 15.9 | 16.4 |
| Chiwaukum G. S. | 20B16 | 1810 | 3/29 | 17 | 6.4 | 8.0 | 15.9 |
| Lake Wenatchee | 20B05 | 1970 | Watershed Logged Discontinued | | | | |
| Lyman Lake | 20A23 | 5900 | 3/27 | 137 | 54.6 | 61.3 | 61.8 |
| Merrett | 20B18 | 2140 | 3/29 | 0 | 0.0 | .0 | |
| Stevens Pass | 21B01 | 4070 | 3/29 | 97 | 40.3 | 42.8 | 53.0 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 3/29 | 68 | 25.0 | 30.4 | 37.5 |
| COLOCKUM CREEK | | | | | | | |
| Trough #2(SP) | 20B25 | 5310 | 3/29 | 11 | 3.3 | 25.5 | 11.9 |

+ Aerial stadia observation
# Average based on 1961-1980 averages.

WSFB-X4-L

# SNOW DATA TO APRIL 1, 1984 - APPENDIX 5

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| SQUILCHUCK CREEK | | | | | | | |
| Beehive Springs | 20B03 | 4400 | 3/29 | 12 | 5.1 | 10.4 | 7.9 |
| Scout-a-Vista | 20B04 | 3400 | Not Measured | | | 7.2 | 8.2 |
| STEMILT CREEK | | | | | | | |
| Stimelt Slide | 20B06 | 5000 | 3/29 | 25 | 9.7 | 21.4 | 13.6 |
| Upper Wheeler(SP) | 20B07 | 4400 | 3/29 | 39 | 11.3 | 16.8 | 8.6 |
| YAKIMA RIVER | | | | | | | |
| Ahtanum R.S. | 21C11 | 3100 | 3/28 | 8 | 3.2 | 7.0 | 5.8 |
| Big Boulder Creek | 21B09 | 3200 | 3/28 | 36 | 12.6 | 12.2 | 18.4 |
| Blewet Pass No. 2 | 20B02 | 4270 | 3/29 | 32 | 11.8 | 15.9 | 16.4 |
| Bumping Lake Old | 21C08 | 3450 | 3/30 | 25 | 9.0 | 15.2 | 15.7 |
| Bumping Lake New | 21C36 | 3400 | 3/30 | 34 | 12.7 | 20.0 | 20.6 |
| Cayuse Pass | 21C06 | 5300 | 3/29 | 178 | 78.6 | 99.2 | 88.1 |
| Colockum Pass | 20B09 | 5370 | 3/27 | 49 | 16.8 | 26.4 | 14.2 |
| Corral Pass | 21B13 | 6000 | 3/29 | 81 | 31.2 | 36.5 | 41.3 |
| Fish Lake | 21B04 | 3371 | 3/28 | 65 | 26.9 | 28.0 | 34.0 |
| Green Lake | 21C10 | 6000 | 3/27 | 66 | 26.0 | 44.9 | 34.6 |
| Grouse Camp | 20B11 | 5385 | 3/26 | 42 | 15.6 | 30.4 | 17.1 |
| Lake Cle Elum | 21B14 | 2200 | 3/27 | 0 | 0.0 | 0.0 | 5.5 |
| Morse Lake | 21C17 | 5400 | 3/27 | 114 | 46.7 | 67.8 | 57.5 |
| Olallie Meadows | 21B02 | 3625 | 3/30 | 71 | 31.7 | 20.7 | 48.4 |
| Stampede Pass | 21B10 | 3860 | 4/01 | 94 | 43.5 | 39.4 | 43.0 |
| Tunnel Avenue | 21B08 | 2450 | 3/27 | 29 | 11.0 | 9.4 | 23.7 |
| White Pass E. Side | 21C28 | 4500 | 3/29 | 59 | 24.2 | 27.0 | 24.9 |

# Average based on 1961-1980 Averages.
s Snow pillow reading.

WSFB-X4-L

SNOW DATA TO APRIL 1, 1984 - APPENDIX 6

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Ahtanum R. S. | 21C11 | 3100 | 3/28 | 8 | 3.2 | 7.0 | 5.8 |
| Green Lake | 21C10 | 6000 | 3/27 | 66 | 26.0 | 44.9 | 34.6 |
| LOWER COLUMBIA DRAINAGE | | | | | | | |
| MILL CREEK | | | | | | | |
| High Ridge SP | 18D19 | 4150 | 3/30 | 92 | 36.0s | 28.9 | |
| Touchet # 2 SP | 17C55 | 5530 | 3/30 | | 32.5s | 37.9 | |
| COWLITZ RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | 3/29 | 178 | 78.6 | 99.2 | 88.1 |
| White Pass E. Side | 21C28 | 4500 | 3/29 | 59 | 24.4 | 27.5 | 23.1 |
| PUGET SOUND DRAINAGE | | | | | | | |
| WHITE RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | 3/29 | 178 | 78.6 | 99.2 | 88.1 |
| Corral Pass | 21B13 | 6000 | 3/29 | 81 | 31.2 | 36.5 | 41.3 |
| Morse Lake | 21C17 | 5400 | 3/27 | 114 | 46.7 | 67.8 | 57.5 |
| GREEN RIVER | | | | | | | |
| Airstrip | 21B24 | 1800 | 4/04 | 0 | | 0.0 | 1.6 |
| Charley Creek | 21B25 | 1200 | 4/04 | 0 | | 0.0 | 0.0 |
| Cougar Mountain | 21B42 | 3200 | 4/04 | 31 | 12.2 | 2.7 | 20.6 |
| Grass Mtn. No. 2 | 21B27 | 2900 | 4/04 | 19 | 5.3 | 0.0 | 21.4 |
| Grass Mtn. No. 3 | 21B28 | 2100 | 4/04 | 0 | | 0.0 | 3.9 |
| Lester Creek | 21B29 | 3100 | 4/04 | 42 | 13.2 | 10.4 | 25.9 |
| Lynn Lake | 21B50 | 4000 | 4/04 | 41 | 11.5 | 1.7 | 25.1 |
| Sawmill Ridge | 21B31 | 4700 | 4/04 | 67 | 20.8 | 24.6 | 39.5 |
| Stampede Pass | 21B10 | 3860 | 4/01 | 94 | 43.5 | 39.4 | 43.0 |
| Twin Camp | 21C30 | 4100 | 4/04 | 53 | 16.3 | 18.1 | 26.4 |

# Average based on 1961-1980 averages
s Snow Pillow

WSFB-X4-L

## SNOW DATA TO APRIL 1, 1984 - APPENDIX 7

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows | 21B02 | 3625 | 3/30 | 71 | 31.7 | 20.7 | 48.4 |
| SKYKOMISH RIVER | | | | | | | |
| Stevens Pass | 21B01 | 4070 | 3/29 | 97 | 40.3 | 42.8 | 53.0 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 3/29 | 68 | 25.0 | 30.4 | 37.5 |
| SKAGIT RIVER | | | | | | | |
| Beaver Creek Trail | 21A04 | 2200 | 3/29 | 3 | 1.2 | 6.3 | 13.5 |
| Beaver Pass | 21A01 | 3680 | 3/30 | 46 | 17.9 | 28.6 | 32.2 |
| Brown Top Ridge | 21A28 | 6000 | 3/29 | 124 | 46.8 | 53.2 | 65.7 |
| Devils Park | 20A04 | 5900 | 3/29 | 80 | 27.6 | 38.6 | 45.8 |
| Freezeout Creek Trail | 20A01 | 3500 | 3/29 | 13 | 4.8 | 8.7 | 12.6 |
| Freezeout Meadows New | 20A38 | 5000 | 3/29 | 52 | 17.9 | 37.7 | 35.7 |
| Granite Creek | 21A29 | 3500 | 3/30 | 26 | 9.2 | 15.8 | 19.2 |
| Harts Pass | 20A05A | 6500 | 3/29 | 97 | 33.1 | 42.2 | 46.4 |
| Klesilkwa | 3D03ACA | 3700 | 3/29 | 4 | 1.5 | 5.5 | 15.2 |
| Lightning Lake | 3D02CAN | 4000 | 4/02 | 22 | 7.4 | 10.3 | 14.3 |
| Lyman Lake | 20A23 | 5900 | 3/27 | 137 | 54.6 | 61.3 | 61.8 |
| Meadow Cabins | 20A08 | 1900 | 3/29 | 0 | 0.0 | 0.0 | 5.8 |
| New Hozomeen Lake | 21A30 | 2800 | 3/29 | 3 | 1.5 | 6.0 | 13.2 |
| Rainy Pass | 20A09 | 4780 | 3/30 | 79 | 30.0 | 35.4 | 41.8 |
| Thunder Basin | 20A07 | 4200 | 3/29 | 33 | 10.8 | 18.5 | 23.5 |

# Average based on 1961-1980 averages

WSFB-X4-L

# SNOW DATA TO APRIL 1, 1984 - APPENDIX 8

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| BAKER RIVER | | | | | | | |
| Dock Butte + | 20A11A | 3800 | 3/29 | 126 | 53.0 | 63.0 | 70.4 |
| Easy Pass + | 21A07A | 5200 | 3/29 | 140 | 60 | 83.0 | 90.9 |
| Jasper Pass + | 21A06A | 5400 | 3/29 | 167 | 69 | 100. | 89.9 |
| Martin Lake | 21A09A | 3600 | 3/29 | 142 | 60.0 | 78.0 | 75.6 |
| Mt. Blum + | 21A18A | 5800 | 3/29 | 138 | 58.0 | 72.0 | 63.0 |
| Rocky Creek | 21A12A | 2100 | 3/29 | 28 | 12.0 | 6.0 | 29.8 |
| Schreibers Meadow | 21A10A | 3400 | 3/29 | 86 | 37.0 | 45.0 | 64.6 |
| S.F. Thunder Creek + | 21A14A | 2200 | 3/29 | 0 | 0.0 | 0.0 | 6.6 |
| Watson Lake | 21A08A | 4500 | 3/29 | 116 | 48.0 | 65.0 | 69.1 |
| OLYMPIC PENINSULA DRAINAGE | | | | | | | |
| DUNGENESS RIVER | | | | | | | |
| Deer Park | 23B04 | 5200 | 3/27 | 30 | 11.7 | 25.6 | 21.4 |
| MORSE CREEK | | | | | | | |
| Cox Valley | 23B14 | 4500 | 3/29 | 77 | 32.1 | 45.6 | 40.8 |
| ELWHA RIVER | | | | | | | |
| Hurricane | 23B03 | 4500 | 3/31 | 38 | 14.7 | 22.5 | 24.6 |

+ Aerial stadia observation
# Average based on 1961-1980 average

WSFB-X4-L

# SNOTEL READINGS, APRIL 1, 1984 - APPENDIX J

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Average # |
| **PEND OREILLE RIVER** | | | | | | | |
| Bunchgrass Meadow | 17A01 | 5000 | 3/15 | | 23.1 | 36.6 | |
| | GT | | 3/30 | 83 | 29.2 | 27.12 | |
| | | | 4/01 | | 26.2 | 38.3 | |
| **OKANOGAN & METHOW RIVERS** | | | | | | | |
| Harts Pass | 20A05 | 6500 | 3/15 | | 30.6 | 44.1 | |
| | GT | | 3/29 | 90 | 29.8 | 39.3 | |
| | | | 4/01 | | 34.7 | 48.6 | |
| Salmon Meadow | 19A02 | 4500 | 3/16 | | 17.6 | 27.9 | |
| | | | 3/31 | | 20.5 | 32.2 | |
| **CHELAN LAKE BASIN** | | | | | | | |
| Lyman Lake | 20A23 | 5900 | 3/15 | | 55.7 | 58.0 | |
| | GT | | 3/27 | 137 | (54.6) | 61.3 | |
| | | | 4/01 | | 62.1 | 65.3 | |
| Mirror Lake | 20A39 | 5600 | 3/15 | | 25.9 | | |
| | GT | | 3/27 | 79 | (26.7) | 36.9 | |
| | | | 3/28 | | 28.5 | 39.5 | |
| Park Creek Ridge | 20A12 | 4600 | 3/16 | | 32.6 | 36.0 | |
| | | | 3/27 | 86 | (34.8) | 41.2 | |
| | | | 4/01 | | 35.3 | 48.3 | |
| Rainy Pass | 20A09 | 4780 | 3/20 | | 30.4 | 42.2 | |
| | GT | | 3/29 | 79 | (26.8) | 33.0 | |
| | | | 4/01 | | 32.3 | 45.2 | |
| **ENTIAT RIVER** | | | | | | | |
| Pope Ridge | 20B20 | 3450 | 3/15 | | 16.8 | 17.6 | |
| | GT | | 3/30 | 38 | (13.0) | 19.4 | |
| | | | 4/01 | | 15.7 | 16.9 | |
| **WENATCHEE RIVER** | | | | | | | |
| Blewett Pass | 20B02 | 4270 | 3/15 | | 17.9 | 19.2 | |
| | GT | | 3/27 | | 15.1 | | |
| | | | 4/01 | | 18.4 | 21.0 | |
| Lyman Lake | 20A23 | 5900 | 3/15 | | 55.7 | 58.0 | |
| | GT | | 3/27 | 137 | 54.6 | 65.3 | |
| | | | 4/01 | | 62.1 | 65.3 | |
| Stevens Pass | 21B01 | 4070 | 3/15 | | 33.2 | 23.0 | |
| | GT | | 3/29 | 86 | (35.8) | | |
| | | | 4/01 | | 37.1 | 23.9 | |
| Trough # 2 | 20B25 | 5300 | 3/15 | | 2.8 | 20.0 | |
| | GT | | 3/29 | 11 | (3.3) | 25.5 | |
| | | | 4/01 | | 2.0 | 24.1 | |

GT = Ground Truth measurement at SNOTEL site

WSFR-X4-L

SNOTEL READINGS, APRIL 1, 1984 - APPENDIX 2

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| COLOCKUM CREEK | | | | | | | |
| Trough # 2 | 20B25 | 5300 | 3/15 | | 2.8 | 20.0 | |
| | GT | | 3/29 | 6 | (3.3) | 25.5 | |
| | | | 4/01 | | 2.0 | 24.1 | |
| STEMILT CREEK | | | | | | | |
| Upper Wheeler | 20B07 | 4400 | 3/15 | | 13.3 | 16.8 | |
| | GT | | 3/29 | 38 | (11.3) | 16.8 | |
| | | | 4/01 | | 20.0 | 18.7 | |
| YAKIMA RIVER | | | | | | | |
| Big Boulder Creek | 21B09 | 3200 | 3/15 | | 14.9 | 17.1 | |
| | | GT | 3/28 | 36 | 12.6 | 16.0 | |
| | | | 4/01 | | 14.2 | 16.6 | |
| Bumping Ridge | 21C38 | 4600 | 3/15 | | 26.4 | | |
| | GT | | 3/30 | 65 | 25.2 | | |
| | | | 4/01 | | 27.9 | | |
| Corral Pass | 21B13 | 6000 | 3/15 | | 6.5 | 31.1 | |
| | | | 4/01 | | 8.2 | 26.5 | |
| Fish Lake | 21B04 | 3371 | 3/15 | | 27.5 | | |
| | GT | | 3/28 | 65 | 26.9 | 28.0 | |
| | | | 4/01 | | 28.5 | | |
| Green Lake | 21C10 | 6000 | 3/15 | | 17.4 | 31.1 | |
| | GT | | | | | 28.3 | |
| | | | 4/01 | | 18.3 | 34.2 | |
| Grouse Camp | 20B11 | 5385 | 3/15 | | 16.2. | 23.9 | |
| | GT | | 3/26 | 54 | 18.8 | 27.3 | |
| | | | 4/01 | | 17.6 | 27.3. | |
| Morse Lake | 21C17 | 5400 | 3/15 | | 50.0 | 73.8 | |
| | | | 4/01 | | 55.8 | 80.0 | |
| White Pass E. Side | 21C28 | 4500 | 3/15 | | 22.0 | 20.5 | |
| | GT | | 3/29 | 59 | 24.4 | 23.0 | |
| | | | 4/01 | | 23.4 | 27.0 | |

GT = Ground Truth measurement at SNOTEL site

WSFB-X4-L

# SNOTEL READINGS, APRIL 1, 1984 - APPENDIX 3

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Green Lake | 21C10 | 6000 | 3/15 | | 17.4 | 31.1 | |
| | GT | | 3/27 | 66 | 26.0 | 44.9 | |
| | | | 4/01 | | 18.3 | 34.2 | |
| TOUCHET RIVER | | | | | | | |
| Touchet # 2 | 17C5 | 5530 | 3/15 | | 28.2 | 32.3 | |
| | GT | | 3/01 | 69 | 22.0 | | |
| | | | 4/01 | | 32.5 | 37.9 | |
| LEWIS RIVER | | | | | | | |
| June Lake | 22C09 | 3200 | 3/15 | | | 25.5 | |
| | GT | | 3/30 | 61 | 32.5 | 26.0 | |
| | | | 4/01 | | | 26.0 | |
| Lone Pine Shelter | 21C26 | 3800 | 3/15 | | 32.5 | 38.9 | |
| | GT | | 3/30 | 70 | 28.3 | 44.9 | 43.0 |
| | | | 4/01 | | 34.4 | 44.9 | |
| Plains of Abraham | 22C01 | 4400 | 3/15 | | 72.8 | | |
| | | | 4/01 | | 83.0 | | |
| Sheep Canyon | 22C10 | 4050 | 3/15 | | 33.8 | | |
| | | | 4/01 | | 37.7 | | |
| Spencer Meadow | 21C20 | 3400 | 3/15 | | 19.0 | 26.7 | |
| | | | 4/01 | | 20.7 | 30.2 | |
| Surprise Lake | 21C13 | 4250 | 3/15 | | 47.8 | 49.1 | |
| | GT | | 3/30 | 98 | 43.0 | 55.7 | 52.1 |
| | | | 4/01 | | 55.7 | 55.7 | |
| COWLITZ RIVER | | | | | | | |
| Pigtail Peak | 21C33 | 5900 | 3/15 | | 39.3 | 41.1 | |
| | GT | | 3/27 | 107 | 41.5 | 41.1 | 68.4 |
| | | | 4/01 | | 44.7 | 45.8 | |
| Potato Hill | 21C14 | 4500 | 3/15 | | 20.0 | | |
| | GT | | 3/27 | 57 | 22.8 | 48.4 | 38.5 |
| | | | 4/01 | | 20.8 | | |
| Sheep Canyon | 22C10 | 4050 | 3/15 | | 33.8 | | |
| | | | 4/01 | | 37.7 | | |
| Strawberry Landing | 22C08 | 3280 | 3/15 | | | 35.5 | |
| | GT | | | 92 | 44.0 | 39.9 | |
| | | | 4/01 | | | 32.8 | |

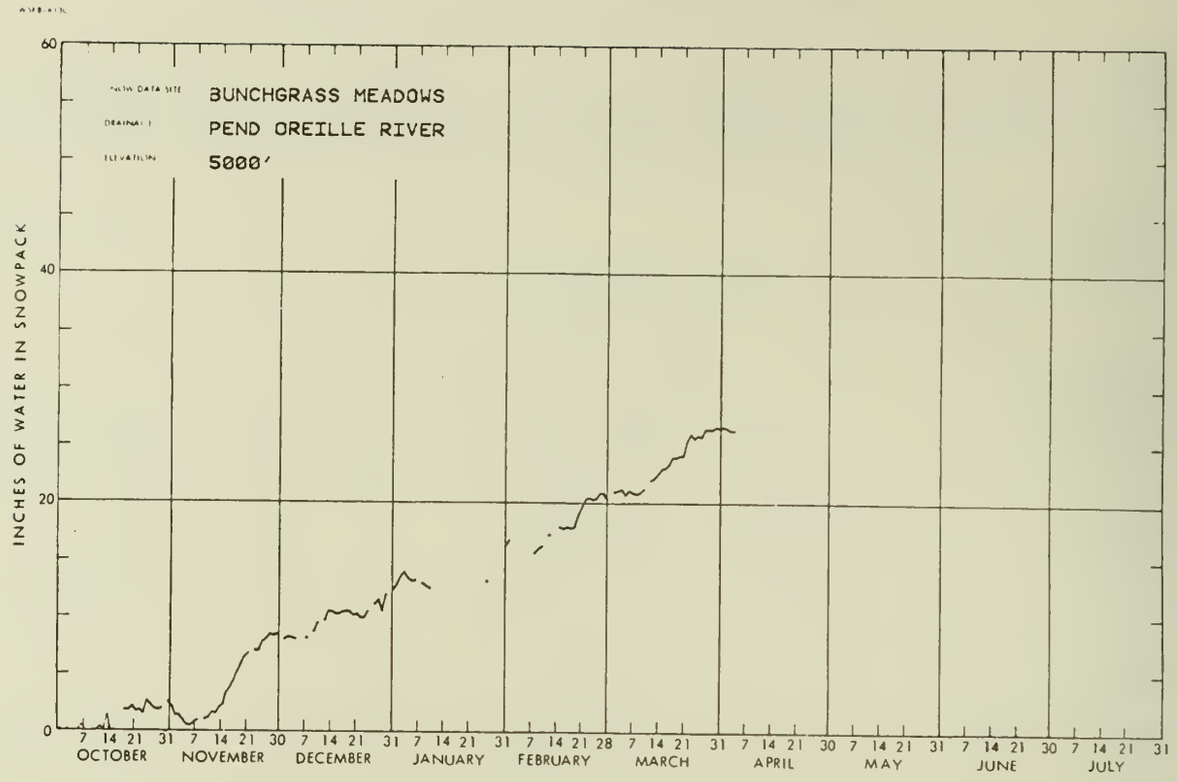
GT = Ground Truth measurement at SNOTEL sites

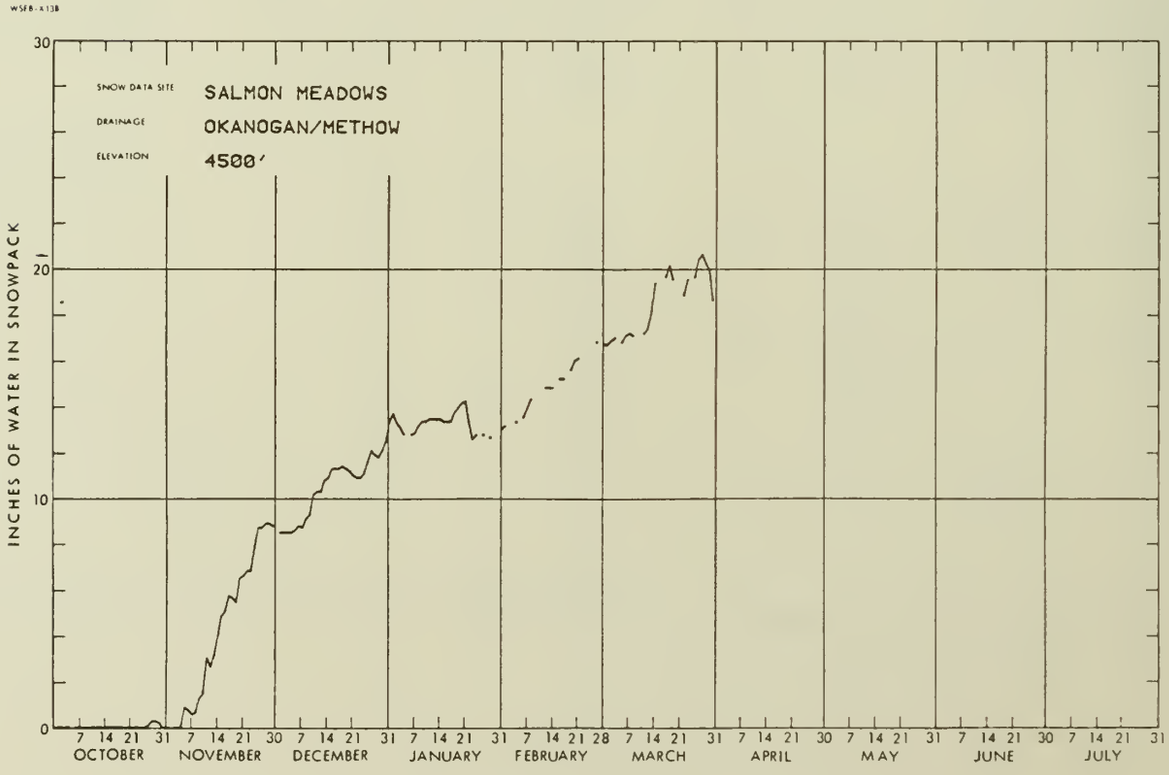
WSFB-X4-L

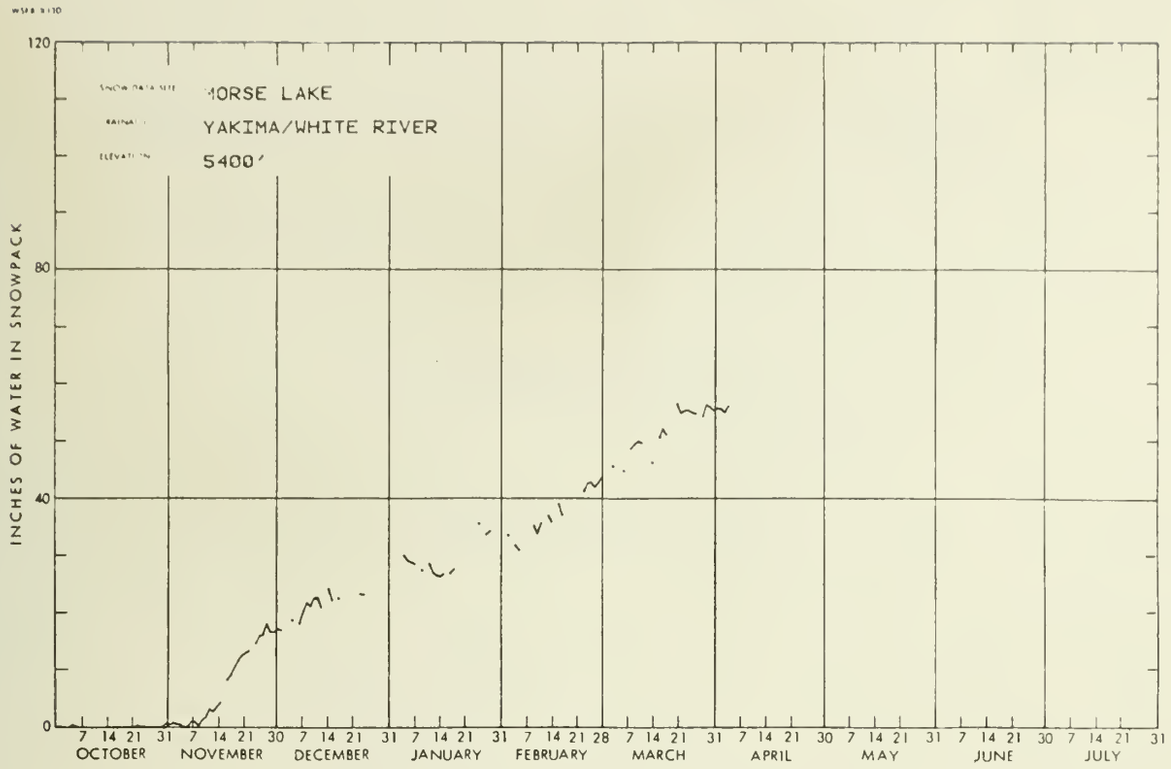
SNOTEL READINGS, APRIL 1,1984 - APPENDIX 4

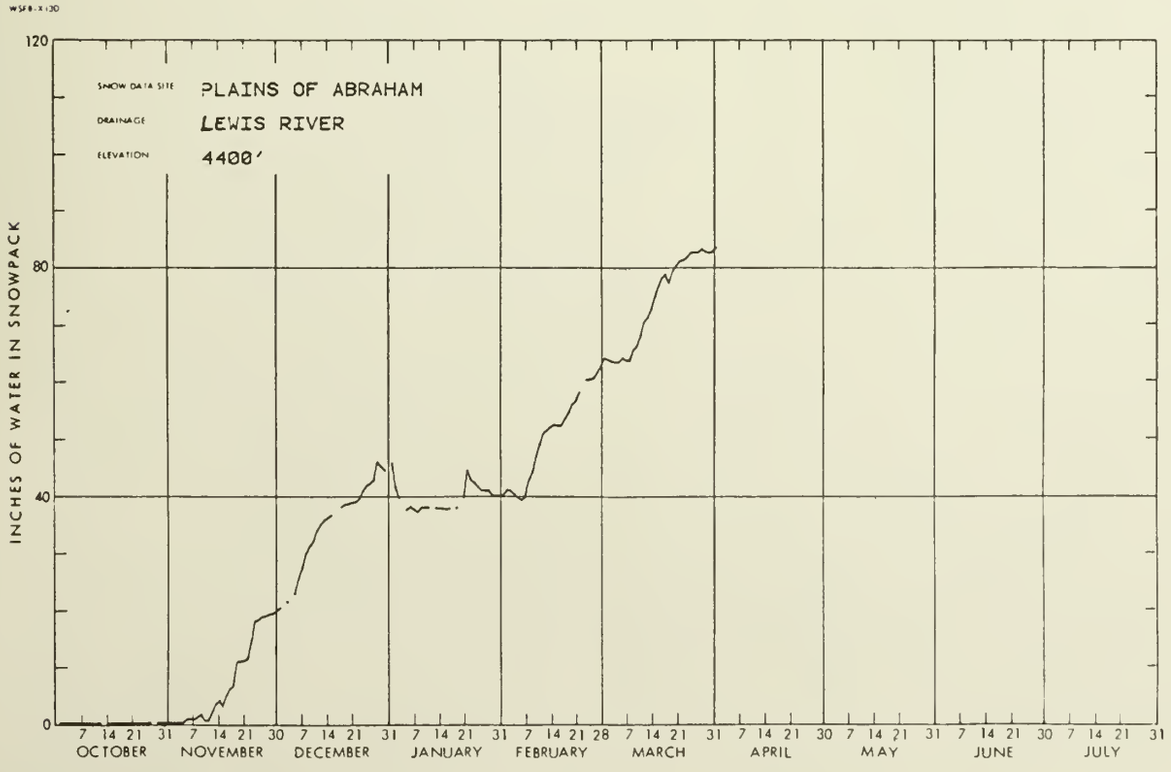
| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| NISQUALLY RIVER | | | | | | | |
| Paradise Park | 21C35 | 5500 | 3/15 | | 28.0 | | |
| | | | 4/01 | | 24.5 | | |
| WHITE RIVER | | | | | | | |
| Corral Pass | 21B13 | 6000 | 3/15 | | 6.5 | 31.1 | |
| | GT | | 3/29 | 81 | 31.2 | 36.5 | 41.3 |
| | | | 4/01 | | 8.2 | 26.5 | |
| Morse Lake | 21C17 | 5400 | 3/15 | | 50.8 | 73.8 | |
| | GT | | 3/27 | 114 | 46.7 | 67.8 | 57.5 |
| | | | 4/01 | | 55.8 | 80.0 | |
| GREEN RIVER | | | | | | | |
| Cougar Mountain | 21B42 | 3200 | 3/15 | | 13.9 | 2.7 | |
| | GT | | 3/29 | 31 | 12.2 | 2.7 | 20.6 |
| | | | 4/01 | | 14.1 | .6 | |
| Stampede Pass | 21B10 | 3960 | 3/15 | | 38.6 | 31.8 | |
| | GT | | 4/01 | 94 | 36.0 | 33.0 | |
| | | | 4/01 | | 42.7 | 36.2 | |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows East | 21B55 | 3960 | 3/15 | | 45.2 | 43.9 | |
| | | | 4/01 | | 50.7 | 49.7 | |

GT = Ground Truth measurements at SNOTEL sites


SNOW DATA SITE
BUNCHGRASS MEADOWS
DRAINAGE
PEND OREILLE RIVER
ELEVATION
5000'
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
SALMON MEADOWS
DRAINAGE
OKANOGAN/METHOW
ELEVATION
4500'
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


HORSE LAKE
YAKIMA/WHITE RIVER
5400'
INCHES OF WATER IN SNOWPACK
120
80
40
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
PLAINS OF ABRAHAM
DRAINAGE
LEWIS RIVER
ELEVATION
4400'
INCHES OF WATER IN SNOWPACK
120
80
40
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma
City of Seattle

*Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.*

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# COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation , navigation , mining and industry

*"The Conservation of Water begins with the Snow Survey"*

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United States
Department of
Agriculture

**Soil
Conservation
Service**

Spokane,
Washington

# Water Supply Outlook for Washington

as of MAY 1, 1984

The Library of the

JUN 11 1984

University of Illinois
at Urbana-Champaign

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

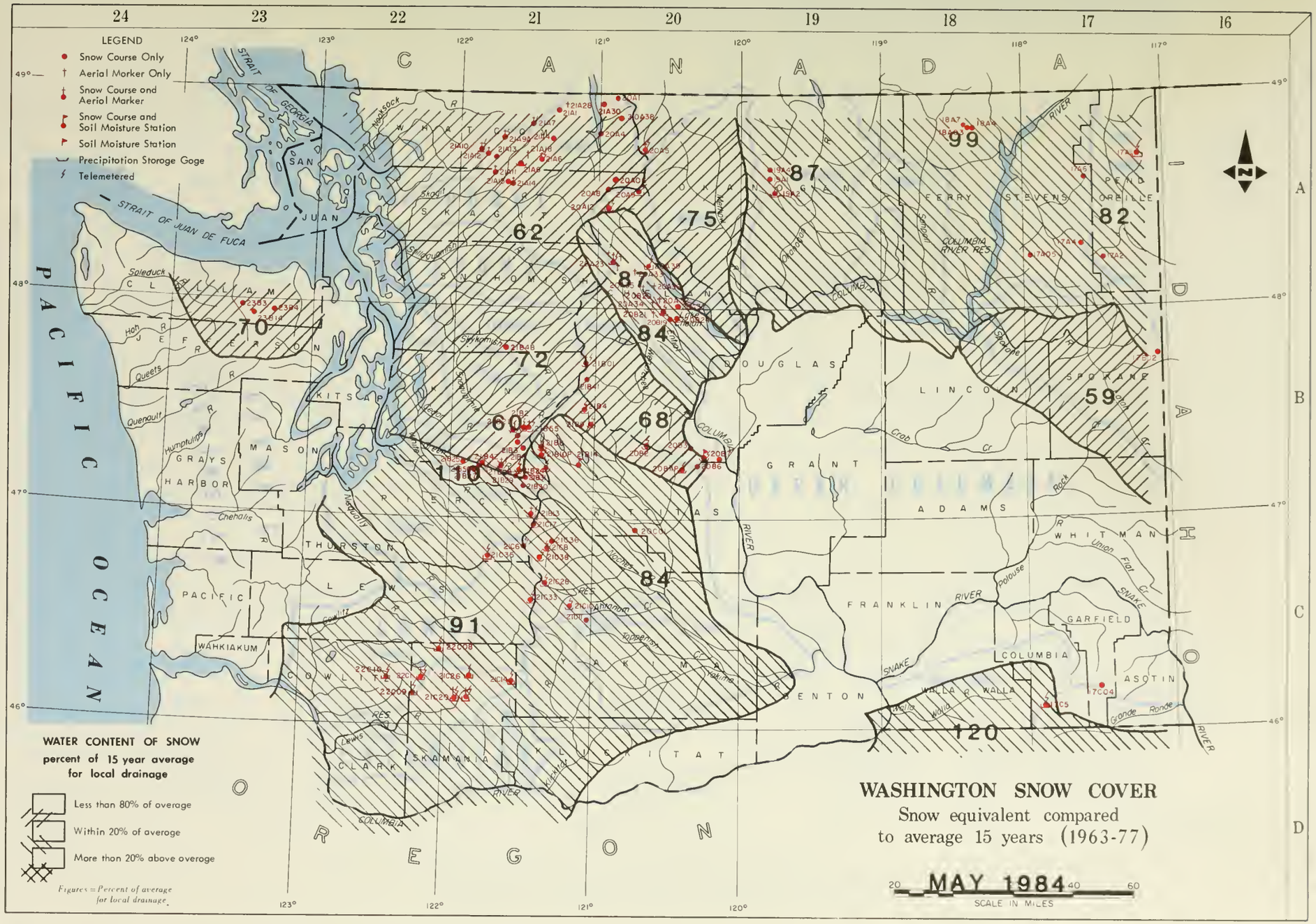
Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE | ADDRESS |
|---|---|
| Alaska | Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504 |
| Arizona | Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025 |
| Colorado (N. Mex.) | P.O. Box 17107, Denver, Colorado 80217 |
| Idaho | Room 345, 304 N. 8th St., Boise, Idaho 83702 |
| Montana | P.O. Box 98, Bozeman, Montana 59715 |
| Nevada | P.O. Box 4850, Reno, Nevada 89505 |
| Oregon | 1220 S. W. Third Ave., Portland, Oregon 97204 |
| Utah | 4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147 |
| Washington | 360 U.S. Court House, Spokane, Washington 99201 |
| Wyoming | P.O. Box 2440, Casper, Wyoming 82601 |

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA SCS FORT WORTH TEXAS 1983 M7-OL-22028C



# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **UPPER COLUMBIA DRAINAGE** | | | | | |
| *Pend Oreille River* | | | | | |
| Boyer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| *Kettle River* | | | | | |
| Summit G. S. | 18A7 | 20 | 39N | 35E | 4600 |
| Butte Creek | 18A3 | 2B | 39N | 35E | 4070 |
| Goat Creek | 18A4 | 26 | 39N | 35E | 3595 |
| *Spokane River* | | | | | |
| Ragged Ridge | 17802 | 12 | 27N | 45E | 3333 |
| *Colville River* | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mountain | 17A5 | 26 | 31N | 3BE | 4990 |
| Chewelah | 17A4 | 11 | 32N | 41E | 4925 |
| *Okanagan River* | | | | | |
| Muttan Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Mutton Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salmon Meadows | 19A2SP | 33 | 37N | 24E | 4500 |
| *Methaw River* | | | | | |
| Harts Pass | 20A5SP | 7 | 37N | 18E | 6500 |
| *Chelan Lake Basin* | | | | | |
| Lyman Lake | 20A23SP | 1B | 31N | 16E | 5900 |
| Park Creek Ridge | 20A12SP | 18 | 34N | 16E | 4600 |
| Rainy Pass | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirrar Lake | 20A39 | 30 | 31N | 1BE | 5600 |
| *Entiat River* | | | | | |
| Brief | 20B19 | 34 | 28N | 19E | 1600 |
| Entiat Meadows | 20A33a | 2B | 31N | 17E | 4540 |
| Entiat River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 1BE | 6510 |
| Pope Ridge | 20B20 | 22 | 29N | 18E | 3540 |
| Pope Ridge Snaw Pillow | 20B24SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32a | 34 | 30N | 18E | 6725 |
| Shady Pass | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20B21a | 10 | 28N | 18E | 4900 |
| *Wenatchee River* | | | | | |
| Berne-Mill Creek (New) | 21B41SP | 13 | 26N | 14E | 3240 |
| Blewett Pass No. 2 | 20B2 SP | 35 | 22N | 17E | 4270 |
| Stevens Poss | 21B1SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| *Squilchuck Creek* | | | | | |
| Beehive Springs | 20B3 | 12 | 21N | 19E | 4400 |
| *Stemilt Creek* | | | | | |
| Stemilt Slide | 2086 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 20B7SP | 30 | 21N | 20E | 4400 |
| *Yakima River* | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 21B4SP | 28 | 24N | 14E | 3371 |
| Green Lake | 21C10 SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20B11 SP | 29 | 21N | 19E | 5385 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Morse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 21BBP | 13 | 21N | 11E | 2450 |
| White Pass (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

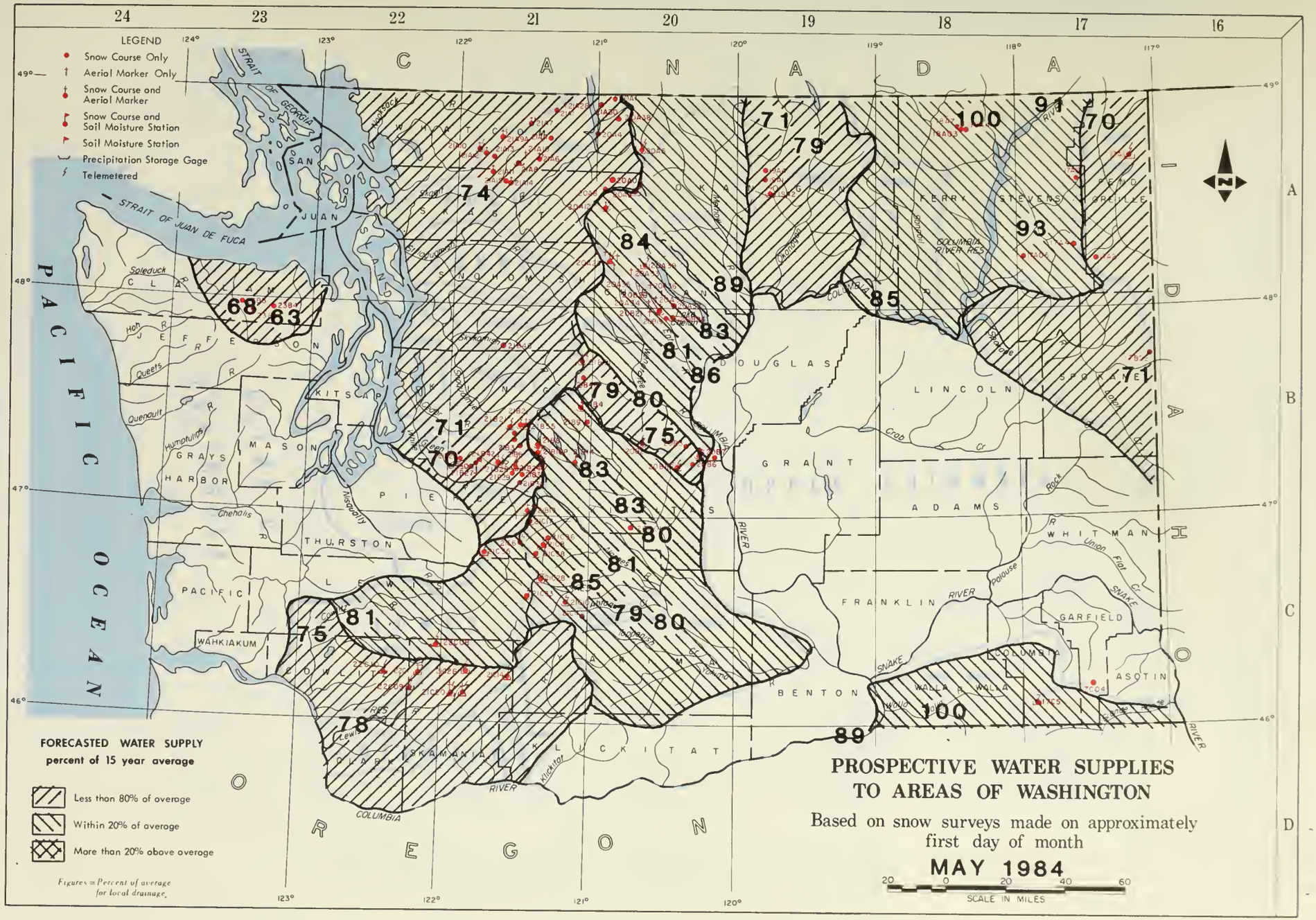
| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **LOWER COLUMBIA DRAINAGE** | | | | | |
| *Asotin Creek* | | | | | |
| Spruce Springs | 17C4 | 9 | 8N | 40E | 5700 |
| *Touchet River* | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| *Lewis River* | | | | | |
| June Lake | 22C09SP | 26 | 8N | 5E | 3200 |
| Lane Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadaw | 21C20SP | 16 | BN | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| *Cawlitz River* | | | | | |
| Cayuse Pass | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Patata Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyon | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C0BSP | 9 | 10N | 6E | 32B0 |
| **PUGET SOUND DRAINAGE** | | | | | |
| *Nisquolly River* | | | | | |
| Paradise Pork (New) | 21C35 SP | 13 | 15N | 8E | 5500 |
| *White River* | | | | | |
| Corral Pass | 21B13 SP | 30 | 18N | 11E | 6000 |
| *Green River* | | | | | |
| Airstrip | 21B24P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21B25 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21B42SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21B27 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21B2B | 12 | 20N | 8E | 2100 |
| Lester Creek | 21B29 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21B50 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21B31 | 5 | 19N | 11E | 4700 |
| Stampede Pass | 21B10 SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21B30 | 18 | 19N | 11E | 4100 |
| *Cedar River* | | | | | |
| City Cabin | 21B3 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21B21P | 30 | 22N | 10E | 3300 |
| *Snoqualmie River* | | | | | |
| Alpine Meadow | 21B48 | 31 | 27N | 9E | 3500 |
| Olallie Meadows | 21B2P | 19 | 22N | 11E | 3625 |
| Olallie Meodows East | 21B55SP | 20 | 22N | 11E | 3700 |
| *Skagit River* | | | | | |
| Beover Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Pass | 21A1 | 9 | 39N | 12E | 3680 |
| Brawn Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A38 | 8 | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| *Baker River* | | | | | |
| Dock Butte | 21A11A | 8 | 36N | 8E | 3800 |
| Easy Pass | 21A7A | 19 | 39N | 11E | 5200 |
| Jasper Pass | 21A6A | 17 | 38N | 11E | 5400 |
| Marten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadaw | 21A10AP | 1B | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |
| **OLYMPIC PENINSULA** | | | | | |
| *Dungeness River* | | | | | |
| Deer Park | 23B4 | 1 | 28N | 5W | 5200 |
| *Elwha River* | | | | | |
| Hurricane | 23B3 | 36 | 29N | 7W | 4500 |
| Cox Valley | 23B14 | 31 | 29N | 6W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Marker |
| 21A7M | Snow Coursa And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

USDA SCS-PORT WORTH, TEXAS 1983 M7-OL-22028D



# INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

## UPPER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Pend Oreille River** | | | | | |
| Boyer Mountain | 17A2 | 7 | 31N | 43E | 5250 |
| Bunchgrass Meadow | 17A1SP | 24 | 37N | 44E | 5000 |
| **Kettle River** | | | | | |
| Summit G. S. | 18A7 | 20 | 39N | 35E | 4600 |
| Butte Creek | 18A3 | 28 | 39N | 35E | 4070 |
| Goat Creek | 18A4 | 26 | 39N | 35E | 3595 |
| **Spakane River** | | | | | |
| Ragged Ridge | 17B02 | 12 | 27N | 45E | 3333 |
| **Calville River** | | | | | |
| Baird | 17A6 | 19 | 36N | 42E | 3215 |
| Stranger Mauntain | 17A5 | 26 | 31N | 38E | 4990 |
| Chewelah | 17A4 | 11 | 32N | 41E | 4925 |
| **Okanogan River** | | | | | |
| Muttan Creek No. 1 | 19A1 | 30 | 37N | 24E | 5700 |
| Muttan Creek No. 2 | 19A4 | 19 | 37N | 24E | 6000 |
| Salmon Meadows | 19A2SP | 33 | 37N | 24E | 4500 |
| **Methaw River** | | | | | |
| Harts Pass | 20A5SP | 7 | 37N | 18E | 6500 |
| **Chelan Lake Basin** | | | | | |
| Lyman Lake | 20A23SP | 18 | 31N | 16E | 5900 |
| Park Creek Ridge | 20A12SP | 18 | 34N | 16E | 4600 |
| Rainy Pass | 20A9SP | 21 | 35N | 17E | 4780 |
| Mirrar Lake | 20A39 | 30 | 31N | 18E | 5600 |
| **Entiat River** | | | | | |
| Brief | 20B19 | 34 | 28N | 19E | 1600 |
| Entiat Meadows | 20A33a | 28 | 31N | 17E | 4540 |
| Entiat River Trail | 20A34a | 2 | 29N | 17E | 3325 |
| Fox Camp | 20A36a | 17 | 30N | 18E | 6510 |
| Pape Ridge | 20B20 | 22 | 29N | 18E | 3540 |
| Pape Ridge Snow Pillow | 20B24SP | 22 | 29N | 18E | 3540 |
| Pugh Ridge | 20A32a | 34 | 30N | 18E | 6725 |
| Shady Pass | 20A37 | 20 | 29N | 19E | 6200 |
| Snow Brushy | 20A35a | 21 | 30N | 17E | 3910 |
| Tommy Creek | 20B21a | 10 | 28N | 18E | 4900 |
| **Wenatchee River** | | | | | |
| Berne-Mill Creek (New) | 21B41SP | 13 | 26N | 14E | 3240 |
| Blewett Pass No. 2 | 20B2SP | 35 | 22N | 17E | 4270 |
| Stevens Pass | 21B1SP | 14 | 26N | 13E | 4070 |
| Trough #2 | 20B25SP | 10 | 20N | 20E | 5310 |
| **Squilchuck Creek** | | | | | |
| Beehive Springs | 20B3 | 12 | 21N | 19E | 4400 |
| **Stemilt Creek** | | | | | |
| Stemilt Slide | 20B6 | 30 | 21N | 20E | 5000 |
| Upper Wheeler | 20B7SP | 30 | 21N | 20E | 4400 |
| **Yakima River** | | | | | |
| Ahtanum R. S. | 21C11 | 24 | 12N | 14E | 3100 |
| Big Boulder Creek | 21B9SP | 35 | 23N | 14E | 3200 |
| Bumping Lake | 21C8P | 23 | 16N | 12E | 3450 |
| Bumping Lake New | 21C36 | 13 | 16N | 12E | 3400 |
| Bumping Ridge | 21C38SP | 9 | 15N | 12E | 4600 |
| Fish Lake | 21B4SP | 28 | 24N | 14E | 3371 |
| Green Lake | 21C10SP | 3 | 12N | 13E | 6000 |
| Grouse Camp | 20B11SP | 29 | 21N | 19E | 5385 |
| Lake Cle Elum | 21B14M | 15 | 20N | 14E | 2200 |
| Morse Lake | 21C17SP | 6 | 16N | 11E | 5400 |
| Tunnel Avenue | 21B8P | 13 | 21N | 11E | 2450 |
| White Pass (East Side) | 21C28SP | 2 | 13N | 11E | 4500 |

## LOWER COLUMBIA DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Asotin Creek** | | | | | |
| Spruce Springs | 17C4 | 9 | 8N | 40E | 5700 |
| **Touchet River** | | | | | |
| Touchet No. 2 | 17C5SP | 6 | 7N | 40E | 5530 |
| **Lewis River** | | | | | |
| June Lake | 22C09SP | 26 | 8N | 5E | 3200 |
| Lone Pine Shelter | 21C26SP | 8 | 9N | 7E | 3800 |
| Plains of Abraham | 22C1SP | 35 | 9N | 5E | 4400 |
| Spencer Meadaw | 21C20SP | 16 | 8N | 7E | 3400 |
| Surprise Lakes | 21C13SP | 14 | 7N | 8E | 4250 |
| **Cowlitz River** | | | | | |
| Cayuse Pass | 21C6 | 15 | 16N | 10E | 5300 |
| Pigtail Peak | 21C33SP | 11 | 13N | 11E | 5900 |
| Patato Hill | 21C14SP | 36 | 10N | 10E | 4500 |
| Sheep Canyan | 22C10SP | 12 | 8N | 4E | 4050 |
| Strawberry | 22C08SP | 9 | 10N | 6E | 3280 |

## PUGET SOUND DRAINAGE

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Nisqually River** | | | | | |
| Paradise Park (New) | 21C35SP | 13 | 15N | 8E | 5500 |
| **White River** | | | | | |
| Corral Pass | 21B13SP | 30 | 18N | 11E | 6000 |
| **Green River** | | | | | |
| Airstrip | 21B24P | 18 | 20N | 11E | 1800 |
| Charley Creek | 21B25 | 27 | 21N | 8E | 1200 |
| Cougar Mountain | 21B42SP | 21 | 21N | 9E | 3200 |
| Grass Mountain No. 2 | 21B27 | 14 | 20N | 8E | 2900 |
| Grass Mountain No. 3 | 21B28 | 12 | 20N | 8E | 2100 |
| Lester Creek | 21B29 | 36 | 20N | 10E | 3100 |
| Lynn Lake | 21B50 | 22 | 20N | 8E | 4000 |
| Sawmill Ridge | 21B31 | 5 | 19N | 11E | 4700 |
| Stampede Pass | 21B10SP | 25 | 21N | 11E | 3860 |
| Twin Camp | 21B30 | 18 | 19N | 11E | 4100 |
| **Cedar River** | | | | | |
| City Cabin | 21B3 | 10 | 21N | 10E | 2390 |
| Mt. Gardner | 21B21P | 30 | 22N | 10E | 3300 |
| **Snoqualmie River** | | | | | |
| Alpine Meadow | 21B48 | 31 | 27N | 9E | 3500 |
| Olallie Meadows | 21B2P | 19 | 22N | 11E | 3625 |
| Olallie Meadows East | 21B55SP | 20 | 22N | 11E | 3700 |
| **Skagit River** | | | | | |
| Beaver Creek Trail | 21A4 | 35 | 39N | 12E | 2200 |
| Beaver Pass | 21A1 | 9 | 39N | 12E | 3680 |
| Brawn Top | 21A28a | 26 | 40N | 12E | 6000 |
| Devils Park | 20A4 | 34 | 38N | 16E | 5900 |
| Freezeout Creek Trail | 20A1 | 14 | 40N | 14E | 3500 |
| Freezeout Meadows (New) | 20A3B | 8 | 40N | 16E | 5000 |
| Granite Creek | 20A06 | 25 | 36N | 16E | 3500 |
| Meadows Cabins | 20A8 | 29 | 36N | 14E | 1900 |
| New Hozomeen Lake | 21A30 | 19 | 40N | 14E | 2800 |
| Thunder Basin | 20A07 | 10 | 35N | 14E | 4200 |

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Baker River** | | | | | |
| Dack Butte | 21A11A | 8 | 36N | 8E | 3800 |
| Easy Pass | 21A7A | 19 | 39N | 11E | 5200 |
| Jasper Pass | 21A6A | 17 | 38N | 11E | 5400 |
| Morten Lake | 21A9A | 23 | 38N | 8E | 3600 |
| Mount Blum | 21A18a | 27 | 38N | 10E | 5800 |
| Rocky Creek | 21A12AP | 20 | 37N | 8E | 2100 |
| Schreibers Meadaw | 21A10AP | 18 | 37N | 8E | 3400 |
| S. F. Thunder Creek | 21A14A | 20 | 36N | 9E | 2200 |
| Sulphur Creek | 21A13 | 22 | 37N | 8E | 1600 |
| Three Mile Creek | 21A15 | 18 | 36N | 9E | 1600 |
| Watson Lakes | 21A8P | 25 | 37N | 9E | 4500 |

## OLYMPIC PENINSULA

| NAME | NUMBER | SEC. | TWP. | RANGE | ELEV. |
|---|---|---|---|---|---|
| **Dungeness River** | | | | | |
| Deer Park | 23B4 | 1 | 28N | 5W | 5200 |
| **Elwha River** | | | | | |
| Hurricane | 23B3 | 36 | 29N | 7W | 4500 |
| Cax Valley | 23B14 | 31 | 29N | 6W | 4500 |

LEGEND

| | |
|---|---|
| 21A7 | Snow Course Only |
| 21A7a | Aerial Marker Only |
| 21A7A | Snow Course And Aerial Markar |
| 21A7M | Snow Course And Soil Moisture Station |
| 21A7m | Soil Moisture Station |
| 21A7P | Snow Course And Precipitation Storage Gage |
| 21A7p | Precipitation Storage Gage |
| 21A7SP | Snow Pillow |

# WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS


ISSUED BY

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REPORT PREPARED BY

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# WATER SUPPLY OUTLOOK

State of Washington

May 1, 1984

The forecast's for water supply's for most of Washington continued much the same as last month. Water users in the Olympic's and the Puget Sound areas can expect below normal runoff this spring and summer. The mountain snowpack ranges well below average to average. There was some minor improvement in the snow cover over the Yakima river basin It is below average in the Spokane, Pend Oreille, Wenatchee, Entiat and Methow Rivers. The Northwest Cascade slopes show well below average snowpack, with the Skagit having 62% of normal. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage continues very good for May 1. Streamflow continued above average for the Kettle, Okanogan, Walla Walla and Columbia Rivers.

## SNOW COVER

Snow cover in the Puget Sound Watersheds is well below normal. It ranges from a low of 62% on the Skagit, to 110% on the White River. Olympic Peninsula streams are also below average with the Elwha and the Dungeness having a snowpack at 70% of normal. The other area of the state with much below average snowpack is the Spokane River drainage which has 59% of normal. The Entiat River snow courses showed some improvement increasng to 84% of average snow cover.

The Kettle River continues to be near average, as does the Cowlitz River. The Blue Mountain area of the state has the best snowpack being near 120%. All other areas in the state are between 80 and 90% of average.

## PRECIPITATION

April Precipitation was mixed over the state, with Northeastern Washington, Southeastern Washington and the Southwest Cascade being above average Precipitation during the November-March winter period has been above average over the entire state except the Southwest Cascade area. During this period the Puget Sound area received 63.54 inches, 102% of normal. The Yakima area received 30.02 inches, 101% of normal. Precipitation in the northeastern area was 139% of normal.

## RESERVOIR STORAGE

May 1 stored water supplies continue very good, with all sections of the state reporting above average storage. The Yakima irrigation reservoirs are storing 991,000 acre feet of water compared to the April 1 average of 752,100, or 131% of normal. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan is at 261,700 acre-feet, 119% of normal.

## STREAMFLOW

Stream flows during April varied over the state. Streams which had above average runoff for March included the Kettle River at 166%, the Okanogan River at 123%, the Walla Walla River at 111% and the Columbia River at The Dalles 125%. Other streams in the state having below average flows were the Pend Oreille River at 84%, Spokane River at 98%, Yakima River at 93% and the Skagit River at 78%.

The Puget Sound rivers are still forecast below average, with the Skagit at 74%, the Cedar at 71% and the Dungeness at 63%. Forecasts for spring and summer streamflow will be within 20% of average over most of the state. The forecasts for the streams in the Yakima Basin remains nearly constant with 80% at Parker and Cle Elum. Some forecasts for the rest of the state are, the Wenatchee at 80%, the Methow at 89% and the Okanogan at 79%. The Spokane Rivers forecasts remain at 70%.

## STREAMFLOW FORECASTS - MAY 1984

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1982 and 1983 are preliminary and subject to revision.

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Fore-cast period | Seasonal Streamflow in Thousands of Acre-Feet 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| **COLUMBIA BASIN** | | | | | | | |
| COLUMBIA RIVER SYSTEM 1/ | | | | | | | |
| Columbia River | 40900 | 92 | May-Sept | 43225 | 48575 | 48531 | 44605 |
| at Birchbank | 32800 | 92 | May-July | 34569 | 38210 | 38501 | 35705 |
| | 23900 | 92 | May-June | 24281 | 27454 | 27002 | 26027 |
| Columbia River | 58000 | 87 | May-Sept | 46662 | 56425 | 70303 | 66841 |
| at Grand Coulee | 48500 | 86 | May-July | 34933 | 43821 | 58525 | 56169 |
| | 38300 | 87 | May-June | 26597 | 32610 | 44235 | 44036 |
| Columbia River bl. | 63800 | 88 | May-Sept | 44560 | 79386 | 77308 | 72781 |
| Rock Island Dam | 53700 | 87 | May-July | 58672 | 66629 | 64689 | 61601 |
| | 42400 | 88 | May-June | 69844 | 50985 | 49348 | 48384 |
| Columbia River at | 95200 | 94 | May-Sept | 103682 | 118503 | 96188 | 101000 |
| The Dalles, OR | 80600 | 93 | May-July | 88273 | 101631 | 81125 | 86500 |
| | 65200 | 93 | May-June | 70038 | 80122 | 63521 | 70100 |
| PEND OREILLE RIVER SYSTEM | | | | | | | |
| Pend Oreille River | 11600 | 75 | May-Sept | 12841 | 17721 | 13896 | 15425 |
| bl. Box Canyon | 10600 | 75 | May-July | 11482 | 16324 | 13179 | 14156 |
| | 9170 | 75 | May-June | 9226 | 13306 | 11594 | 12227 |
| KETTLE RIVER SYSTEM | | | | | | | |
| Kettle River | 1829 | 100 | May-Sept | 2709 | 2330 | 2184 | 1829 |
| nr. Layruer | 1738 | 100 | May-July | 2534 | 2174 | 2013 | 1738 |
| | 1581 | 100 | May-June | 2251 | 1747 | 1657 | 1581 |
| Colville River | 125 | 93 | May-Sept | 182 | 160 | 125 | 134 |
| at Kettle Falls | 115 | 93 | May-July | 161 | 146 | 111 | 123 |
| | 106 | 93 | May-June | 144 | 132 | 95 | 114 |

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horese, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeue d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Seasonal Streamflow in Thousands of Acre-Feet Fore-cast Period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| SPOKANE RIVER SYSTEM | | | | | | | |
| Spokane River 2/ | 2020 | 71 | May-Sept | M | M | 2238 | 2848 |
| at Post Falls, ID | 1955 | 71 | May-July | M | M | 2145 | 2754 |
| OKANOGAN RIVER SYSTEM | | | | | | | |
| Similkameen River | 1040 | 71 | May-Sept | 1490 | 1638 | 1241 | 1462 |
| nr. Nighthawk | 970 | 71 | May-July | 1356 | 1491 | 1118 | 1365 |
| | 825 | 71 | May-June | 1155 | 1166 | 930 | 1161 |
| Okanogan River | 1300 | 79 | May-Sept | 2170 | 2046 | 1631 | 1644 |
| nr. Tonasket | 1180 | 79 | May-July | 1891 | 1712 | 1416 | 1497 |
| | 1000 | 79 | May-June | 1569 | 1306 | 1107 | 1262 |
| METHOW RIVER SYSTEM | | | | | | | |
| Methow River | 873 | 89 | May-Sept | 1354 | 1203 | 786 | 980 |
| nr. Pateros | 808 | 89 | May-July | 1243 | 1120 | 724 | 908 |
| | 583 | 89 | May-June | 1094 | 918 | 602 | 773 |
| CHELAN RIVER SYSTEM | | | | | | | |
| Chelan River | 1000 | 83 | May-Sept | 1261 | 1376 | 916 | 1203 |
| at Chelan 3/ | 876 | 83 | May-July | 1104 | 1223 | 798 | 1055 |
| | 686 | 83 | May-June | 901 | 958 | 621 | 826 |
| Stehekin River | 720 | 84 | May-Sept | M | 938 | 662 | 860 |
| at Stehekin | 611 | 84 | May-July | 727 | 800 | 543 | 727 |
| | 465 | 84 | May-June | 572 | 603 | 403 | 553 |
| Entiat River | 190 | 81 | May-Sept | 292 | 282 | 186 | 235 |
| nr. Ardenvoir | 173 | 81 | May-July | 263 | 258 | 168 | 213 |
| | 140 | 81 | May-June | 221 | 206 | 137 | 172 |
| WENATCHEE RIVER SYSTEM | | | | | | | |
| Wenatchee River | 1020 | 80 | May-Sept | M | M | M | 1270 |
| nr. Plain | 910 | 80 | May-July | M | M | M | 1136 |
| | 720 | 80 | May-June | M | M | M | 899 |
| Wenatchee River | 1370 | 80 | May-Sept | 1590 | 2013 | 1188 | 1712 |
| at Peshastin | 1235 | 80 | May-July | 1432 | 1791 | 1075 | 1545 |
| | 990 | 80 | May-June | 1191 | 1429 | 869 | 1237 |
| Stemilt Basin nr. Wenatchee | 104* | 75 | May-Sept | M | M | M | **138 |
| Icicle Creek | 291 | 79 | May-Sept | M | M | M | **370 |
| nr. Leavenworth | 270 | 79 | May-July | M | M | M | **340 |
| | 213 | 79 | May-June | M | M | M | **270 |

* Thousands of Miners' Inches

** Average Computed for 1963-1977

2/ Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho. Observed flow corrected for storage in Coeur d'Alene Lake.

3/ Observed flow corrected for storage in Lake Chelan.

| Basin, Stream and Station | Forecast Runoff 1984 | Seasonal Streamflow in Thousands of Acre-Feet: % 20-Yr. Avg. | Fore-cast Period | 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| YAKIMA RIVER SYSTEM | | | | | | | |
| Yakima River | 116 | 83 | May-Sept | 109 | 152 | 95 | 139 |
| nr. Martin 4/ | 107 | 83 | May-July | 96 | 138 | 82 | 128 |
| | 93 | 83 | May-June | 81 | 121 | 73 | 111 |
| Yakima River | 754 | 80 | May-Sept | 733 | 1100 | 700 | 943 |
| at Cle Elum 5/ | 683 | 80 | May-July | 659 | 1010 | 643 | 854 |
| | 587 | 80 | May-June | 589 | 883 | 563 | 734 |
| Yakima River | 1680 | 80 | May-Sept | 2221 | 2434 | 1194 | 2096 |
| nr. Parker 6/ | 1520 | 80 | May-July | 1958 | 2193 | 1059 | 1898 |
| | 1330 | 80 | May-June | 1722 | 1909 | 961 | 1667 |
| Kachess River | 100 | 83 | May-Sept | 105 | 134 | 81 | 121 |
| ne. Easton 7/ | 95 | 83 | May-July | 96 | 126 | 72 | 115 |
| | 84 | 83 | May-June | 84 | 110 | 66 | 101 |
| Cle Elum River | 400 | 86 | May-Sept | 421 | 516 | 313 | 463 |
| nr. Roslyn 8/ | 365 | 86 | May-July | 381 | 468 | 282 | 422 |
| | 305 | 86 | May-June | 324 | 392 | 244 | 353 |
| Bumping River 9/ | 124 | 87 | May-Sept | 137 | 161 | 78 | 142 |
| nr. Nile | 112 | 87 | May-July | 128 | 147 | 70 | 129 |
| | 93 | 87 | May-June | 109 | 123 | 63 | 107 |
| American River | 103 | 83 | May-Sept | M | 140 | 63 | 124 |
| nr. Nile | 94 | 83 | May-July | M | 130 | 58 | 113 |
| | 78 | 83 | May-June | M | 109 | 51 | 94 |
| Tieton River 10/ | 210 | 85 | May-Sept | M | M | 148 | 246 |
| at Tieton Dam | 176 | 85 | May-July | M | M | 131 | 207 |
| | 140 | 85 | May-June | M | M | 108 | 165 |
| Naches River 11/ | 700 | 81 | May-Sept | 966 | 998 | 419 | 867 |
| nr. Naches | 635 | 81 | May-July | 881 | 945 | 380 | 784 |
| | 540 | 81 | May-June | 770 | 775 | 339 | 667 |
| Ahtanum Creek 12/ | 37 | 79 | May-Sept | M | M | M | 47 |
| nr. Tampico | 34 | 79 | May-Sept | M | M | M | 43 |
| | 29 | 79 | May-June | M | M | M | 37 |

4/ Observed flow corrected for stoage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and Diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Rosa, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
7/ Observed flow corrected for strage in Lake Kachess.
8/ Observed flow corrected for stoage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (contined).

| Basin, Stream and Station | Forecast Runoff 1984 | % 20-Yr. Avg. | Forecast Period | Seasonal Streamflow in Thousands of Acre-Feet 1983 | 1982 | 1981 | 20-Yr. Average 61-80 |
|---|---|---|---|---|---|---|---|
| **LOWER COLUMBIA RIVER SYSTEM** | | | | | | | |
| Mill Creek | 17.5 | 100 | May-Sept | 13.48 | 24.62 | 28.5 | **17.50 |
| at Walla Walla | 17.3 | 100 | May-July | 13.39 | 24.48 | 28.5 | **17.33 |
| | 17.2 | 100 | May-June | 13.36 | 21.63 | 27.3 | **17.15 |
| Lewis River | 974 | 78 | May-Sept | 1255 | 1170 | 1096 | 1249 |
| at Ariel 13/ | 847 | 78 | May-July | 1046 | 1030 | 971 | 1086 |
| | 750 | 78 | May-June | 821 | 927 | 865 | 961 |
| Cowlitz River 14/ | 1650 | 81 | May-Sept | 1935 | 4936 | M | 2038 |
| bl. Mayfield Dam | 1440 | 81 | May-July | 1754 | 1963 | M | 1778 |
| | 1220 | 81 | May-June | 1424 | 1722 | M | 1502 |
| Cowlitz River 14/ | 2000 | 75 | May-Sept | 2618 | 2655 | 2390 | 2673 |
| at Castle Rock | 1740 | 75 | May-July | 2195 | 2363 | 2125 | 2323 |
| | 1485 | 75 | May-June | 1739 | 2080 | 1875 | 1980 |
| **OLYMPIC PENINSULA** | | | | | | | |
| **DUNGENESS RIVER SYSTEM** | | | | | | | |
| Dunceness River | 100 | 63 | May-Sept | 197 | 196 | 109 | 160 |
| nr. Sequim | 82 | 63 | May-July | 158 | 163 | 88 | 130 |
| | 61 | 63 | May-June | 117 | 117 | 70 | 97 |
| **ELWHA RIVER SYSTEM** | | | | | | | |
| Elwha River | 375 | 68 | May-Sept | 538 | 607 | 380 | **553 |
| nr. Port Angeles | 308 | 68 | May-July | 448 | 512 | 316 | **454 |
| **PUGET SOUND** | | | | | | | |
| **SKAGIT RIVER SYSTEM** | | | | | | | |
| Skagit River | 1874 | 74 | May-Aug | 1995 | 2248 | 2119 | **2532 |
| at Newhalem 15/ | 1740 | 74 | May-Sept | 1531 | 1880 | 1773 | **2356 |
| | 1460 | 74 | May-July | 1061 | 1439 | 1431 | **1972 |
| | 1100 | 74 | May-June | 698 | 1004 | 1064 | **1485 |
| **GREEN RIVER SYSTEM** | | | | | | | |
| Green River bl. | 220 | 70 | May-Sept | 190 | 227 | 268 | **316 |
| Howard Hanson Dam 16/ | 200 | 70 | May-Sept | 145 | 195 | 245 | **284 |
| | 180 | 70 | May-June | 107 | 174 | 219 | **256 |
| **CEDAR RIVER SYSTEM** | | | | | | | |
| Cedar River | 66 | 71 | May-Sept | 66 | 80 | 74 | **93 |
| nr. Cedar Falls | | | | | | | |

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift reservoirs.
14/ Observed flow corrected for storage in Riffe Lake and Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

## COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of washington stream basins presents the water content of the snow about April 1, 1984, as percent of the same date in 1983 and 1982 and average of record.

| Tributary Basin | No. of Courses | 1984 Snow Water Expressed 1983 | 1982 | 1961-80 Ave. |
|---|---|---|---|---|
| **UPPER COLUMBIA BASIN** | | | | |
| Pend Oreille | 11 | 86 | 63 | 82 |
| Kettle | 6 | 86 | 77 | 99 |
| Colville | | | | |
| Spokane | 6 | 76 | 55 | 59 |
| Okanogan | 22 | 79 | 62 | 87 |
| Methow | 2 | 87 | 45 | 75 |
| Chelan | 3 | 103 | 67 | 87 |
| Entiat | 8 | 74 | 64 | 84 |
| Wenatchee | 8 | 106 | 41 | 68 |
| Yakima | 13 | 118 | 75 | 84 |
| Antanum | | | | |
| **LOWER COLUMBIA BASIN** | | | | |
| Cowlitz | 2 | 96 | 88 | 91 |
| **PUGET SOUND** | | | | |
| White | 3 | | 82 | 93 |
| Green | 5 | 166 | 101 | 110 |
| Snoqualmie | 1 | 250 | 59 | 60 |
| Skykomish | 2 | 110 | 69 | 72 |
| Skagit | 15 | 82 | 52 | 62 |
| Baker | 9 | 106 | | 78 |
| **OLYMPIC PENNINSULA** | | | | |
| Morse | 1 | 80 | 65 | 81 |
| Elwha | 1 | 81 | 63 | 64 |
| Dungeness | 1 | 50 | 45 | 53 |

RESERVOIR STORAGE - 1000 Acre Feet

| BASIN OR STREAM | RESERVOIR | USABLE 1/ CAPACITY | 1984 | Measured (April) 1983 | 1982 | Normal* |
|---|---|---|---|---|---|---|
| | | COLUMBIA | | | | |
| Spokane | Coeur d'Alene Lake | 225.1 | 230.8 | 182.3 | 247.5 | 238.4 |
| Columbia | Franklin D. Roosevelt Lake | 5232.0 | 2222.3 | 523.4 | 412.9 | 867.8 |
| Columbia | Banks Lake | 714.9 | 405.6 2/ | 650.7 | 618.7 | 442.8 |
| Okanogan | Conconully Reservoir | 13.0 | 13.0 | 13.0 | 11.6 | 7.7 |
| Okanogan | Conconully Lake | 10.5 | 10.4 | 10.4 | 10.2 | 8.0 |
| Chelan | Lake Chelan | 676.1 | 261.7 | 281.0 | 201.8 | 219.0 |
| | | YAKIMA | | | | |
| Yakima | Keechelus Lake | 157.8 | 147.0 | 139.6 | 152.8 | 113.8 |
| Kachess | Kachess Lake | 239.0 | 230.0 | 227.1 | 221.2 | 194.2 |
| Cle Elum | Lake Cle Elum | 436.9 | 403.0 | 393.2 | 184.4 | 295.9 |
| Bumping | Bumping Lake | 33.7 | 21.2 | 8.8 | 7.5 | 11.6 |
| Tieton | Rimrock Lake | 198.0 | 184.8 | 148.3 | 178.0 | 136.6 |
| | | PUGET SOUND | | | | |
| Skagit | Ross Reservoir | 1404.1 | 801.1 | 656.8 | 632.1 | 711.5 |
| Skagit | Diablo Reservoir | 90.6 | 83.5 | 85.5 | 87.2 | 86.4 |
| Skagit | Gorge Reservoir | 9.8 | 8.2 | 8.4 | 8.0 | 8.1 |

1/ Based on Active Storage
2/ Banks Lake is being held down for construction at Dry Falls Dam.
* 15-yr. Average 1963-1977

## PRECIPITATION 1/

Division Average Observations and Departures

| Drainage Divisions | Fall Sept-Oct 1983 2/ Observed | Departure | Winter Nov. 1983 - Mar. 1984 2/ Observed | Departure | Spring April 1984 Observed | Departure |
|---|---|---|---|---|---|---|
| Northeastern Wash | 1.55 | -1.55 | 11.78 | +2.38 | 1.92 | -0.66 |
| Southeastern Wash | 2.54 | -0.06 | 12.22 | +1.79 | 1.73 | +0.2 |
| East Slope Cascades | 3.76 | -0.99 | 28.14 | +0.61 | 1.90 | -0.29 |
| North Central Wash | 1.45 | -0.14 | 7.42 | +0.88 | 0.72 | -0.13 |
| Northwest Cascades | 7.97 | -5.24 | 57.50 | +2.11 | 5.64 | -1.00 |
| Southwest Cascades | 5.36 | -3.32 | 40.99 | -0.65 | 4.74 | +0.12 |

Northeastern Washington - Lower Spokane, Colville, Sandpoil, and Lower Kettle Drainages

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages

East Slope Cascades - Yakima, Wenatachee, and Chelan Drainages

North Central Washington - Methow and Okanogan Drainages

Northwest Slope Cascades - Puget Sound Drainages

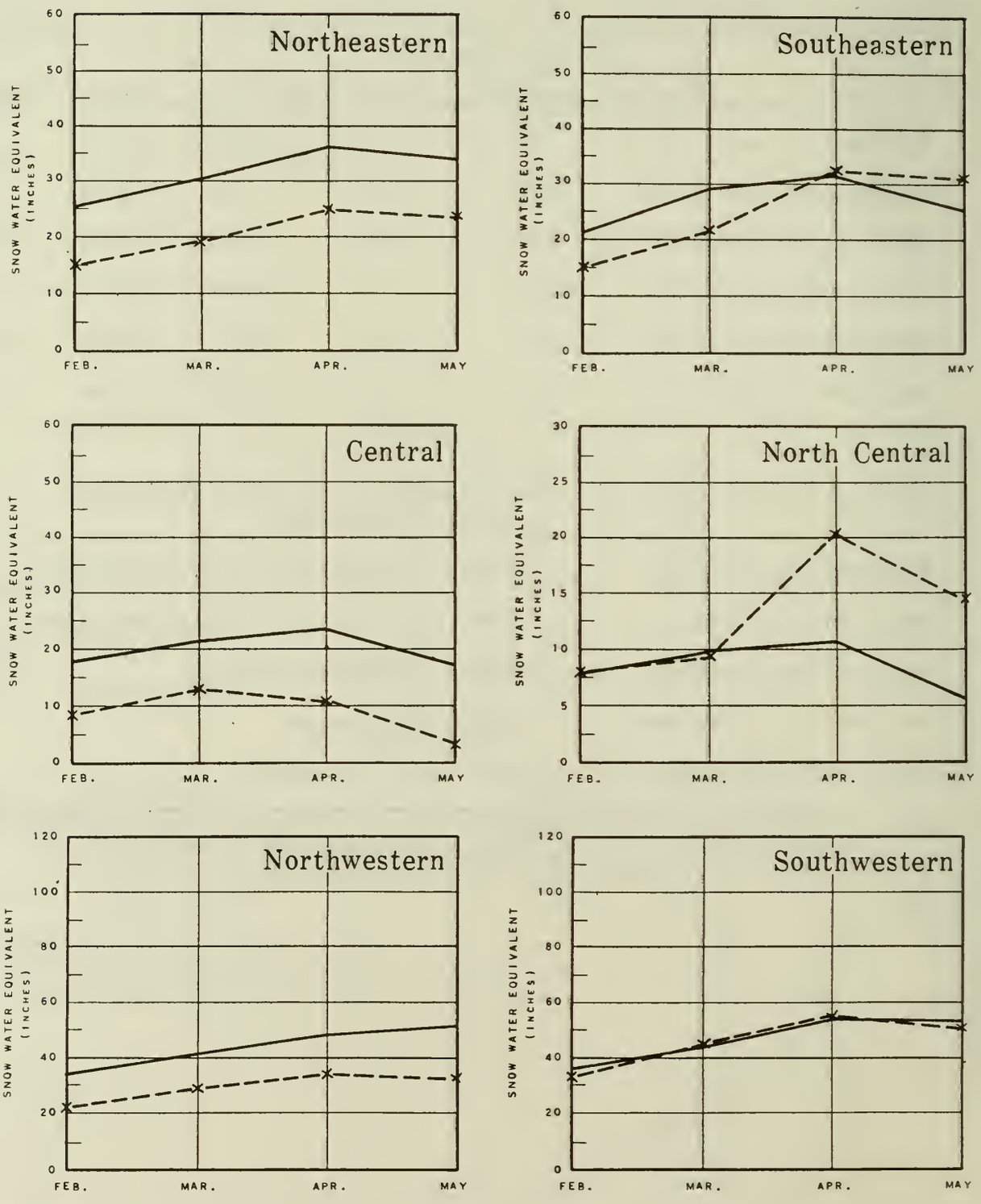
Southwest Slope Cascades - Lower Columbia Drainages

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.
2/ - Departure from 15-year (1958-1972) drainage division average.

# WASHINGTON SNOW COVER

**1984**

## DRAINAGE AREAS




*Selected Snow Survey Courses by Soil Conservation Service*

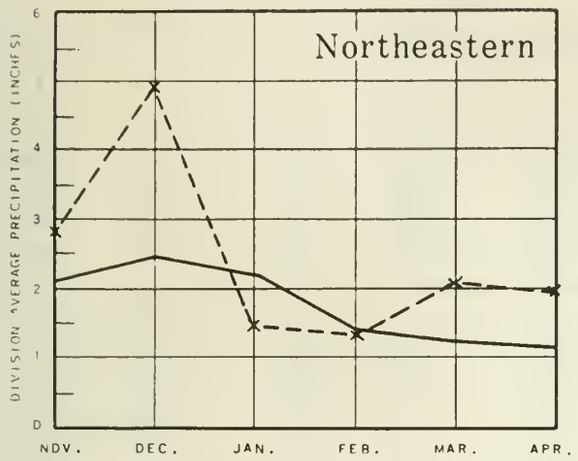


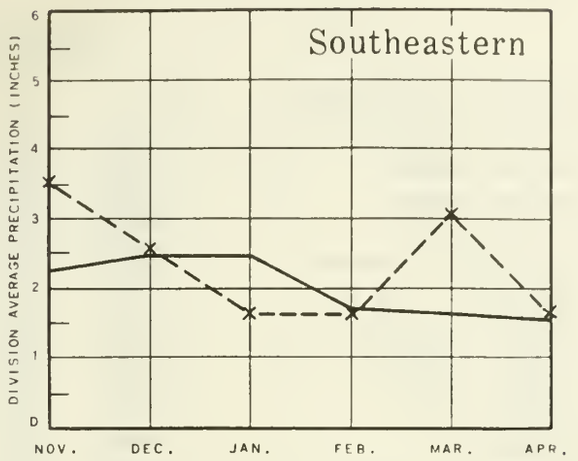
M7-L-22028G

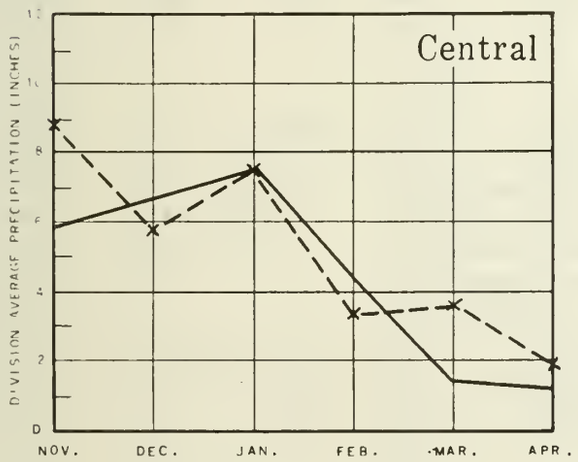
# WASHINGTON VALLEY PRECIPITATION

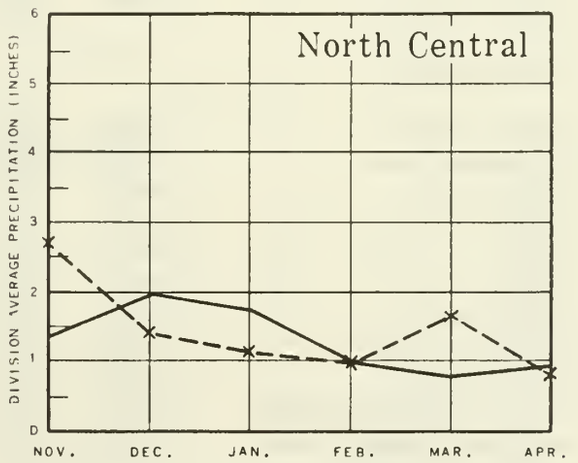
**1984**

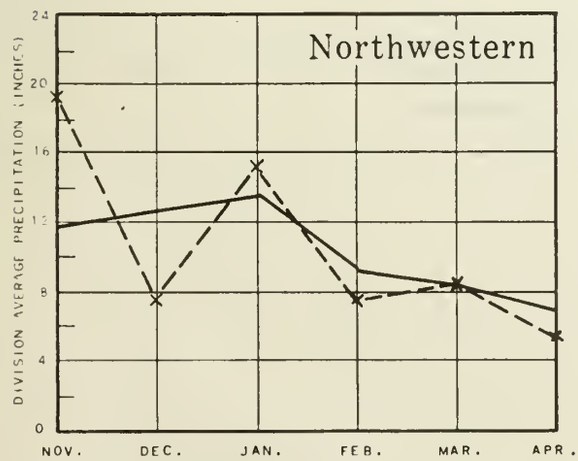
## DRAINAGE AREAS

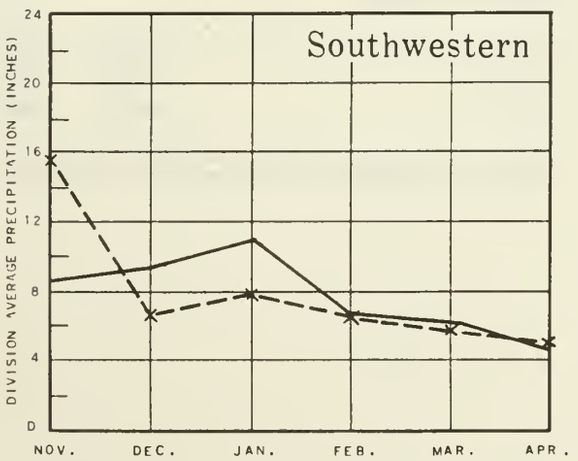



**Average** ———
**1984** - - - - - -

*Preliminary Analysis by National Weather Service*



**NOTE: Precipitation to end of month**

WSFB-X4-L

SNOW DATA TO MAY 1, 1984 - APPENDIX 1

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| **UPPER COLUMBIA DRAINAGE** | | | | | | | |
| **PEND OREILLE RIVER** | | | | | | | |
| Benton Meadow | 16A02 | 2344 | 4/30 | 0 | 0.0 | 0.0 | 0.0 |
| Benton Spring | 16A03 | 4900 | 4/27 | 34 | 12.8 | 19.5 | 15.6 |
| Boyer Mtm | 17A02 | 5250 | 4/30 | 64 | 26.5 | 31.8 | 24.9 |
| Bunchgrass Meadow | 17A01 | 5000 | 5/02 | 68 | 28.2 | 40.9 | 29.0 |
| Chewelah | 17A04 | 4925 | Not Measured | | | | |
| Heart Lake Trail | 14C10 | 4800 | 4/29 | 27 | 11.3 | 9.0 | 18.4 |
| Hoodoo Basin | 15C10 | 6000 | 4/29 | 98 | 42.8 | 45.7 | 54.5 |
| Hoodoo Creek | 15C01 | 5900 | 4/29 | 89 | 39.4 | 41.4 | 50.7 |
| Lookout | 15B02 | 5250 | 4/30 | 55 | 23.8 | 30.6 | 33.7 |
| Nelson | 2D04CA | 3050 | 4/27 | 6 | 2.2 | 5.4 | 7.0 |
| Schweitzer Bowl | 16A06 | 4500 | 4/29 | 48 | 20.3 | 36.3 | 23.7 |
| Schweitzer Ridge | 16A05 | 6100 | 4/29 | 97 | 43.6 | 58.7 | 47.8 |
| **KETTLE RIVER** | | | | | | | |
| Barnes Creek | 2B06CA | 5300 | 4/27 | 54 | 20.9 | 19.2 | 20.7 |
| Big White Mtn. | 2E03CA | 5500 | 4/28 | 57 | 21.8 | 25.7 | 21.1 |
| Butte Creek | 18A03 | 4070 | Not Measured | | | | |
| Carmi | 2E02CA | 4100 | 4/30 | 6 | 2.2 | 0.0 | 2.0 |
| Farron #1 | 2B02CA | 4000 | Not Measured | | | 13.6 | 9.4 |
| Farron #2 | 2B02ACA | 4000 | Not Measured | | | 14.2 | 9.2 |
| Goat Creek | 18A04 | 3595 | Not Measured | | | | 0.0 |
| Monashee Pass | 2E01CA | 4500 | 4/27 | 34 | 12.5 | 12.1 | 12.8 |
| Summit G.S. | 18A05 | 2150 | Not Measured | | | | 5.8 |
| Trapping Creek Lower | 2E05CA | 3050 | 4/29 | 0 | 0.0 | 0.0 | 0.0 |
| Trapping Creek Upper | 2E04CA | 4450 | 4/29 | 11 | 4.3 | 4.7 | 6.0 |
| **COLVILLE RIVER** | | | | | | | |
| Baird | 17A06 | 3215 | Not Measured | | | | |
| Chewelah | 17A04 | 4925 | Not measured | | | | |
| Togo | 18A10 | 3370 | Not Measured | | | | |

# Average based on 1961-1980 averages

WSFB-X4-L

# SNOW DATA TO MAY 1, 1984 - APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| **SPOKANE RIVER** | | | | | | | |
| Above Burke | 15B08 | 4100 | 4/30 | 25 | 9.8 | 13.4 | 19.9 |
| 4th of July Summit | 16B03 | 3100 | 4/30 | 0 | 0.0 | 0.0 | 0.0 |
| Lookout | 15B02 | 5250 | 4/30 | 55 | 23.8 | 30.6 | 33.7 |
| Mosquito Ridge | 16A04 | 5110 | Not Measured | | | | |
| Sherwin | 16C01 | 3200 | 4/30 | 3 | 1.4 | 0.0 | 5.5 |
| Sunset | 15B09A | 5600 | Not Measured | | | | |
| **NEWMAN LAKE** | | | | | | | |
| Ragged Ridge | 17B02 | 3333 | 5/01 | 0 | 0.0 | 0.0 | New |
| **OKANOGAN RIVER** | | | | | | | |
| Aberdeen Lake | 1F01CA | 4300 | 4/30 | 1 | 0.3 | 2.7 | 1.7 |
| Blackwall Peak | 2G03CA | 6250 | 4/27 | 65 | 25.0 | 31.5 | 37.8 |
| Brenda Mine | 2F18CA | 4800 | Not Measured | | | 12.0 | 9.9 |
| Brookmere | 1C01CA | 3200 | 4/30 | 0 | 0.0 | 2.7 | 5.6 |
| Enderby | 1F04CA | 6250 | 4/26 | 109 | 45.7 | 50.4 | 42.3 |
| Esperon Creek Lower | 2F15CA | 4400 | Not Measured | | | | 9.3 |
| Esperon Creek Middle | 2F15CA | 4700 | " " | | | | 12.3 |
| Esperon Creek Upper | 2F13CA | 5400 | " " | | | | 18.1 |
| Grayback Reservoir | 2F08CA | 5225 | 4/27 | 32 | 9.8 | 10.9 | 8.0 |
| Hamilton Hill | 2G06CA | 4900 | 4/26 | 20 | 6.3 | 12.4 | 13.2 |
| Harts Pass | 20A05A | 6500 | 4/26 | 95 | 37.0 | 44.2 | 48.9 |
| Isintok Lake | 2F11CA | 6300 | 4/29 | 18 | 5.1 | 4.5 | 7.1 |
| Lost Horse Mountain | 2G04CA | 7000 | Not Measured | | | 9.7 | 10.5 |
| McCulloch | 2F03CA | 4200 | 4/30 | 2 | 0.4 | 0.6 | 2.7 |
| Missezula Mtn. | 2G05CA | 5100 | 4/27 | 14 | 4.3 | 8.6 | 6.0 |
| Mission Creek | 2F05CA | 6000 | Not Measured | | | 24.3 | 21.7 |
| Monashee Pass | 2E01CA | 4500 | 4/27 | 34 | 12.5 | 12.1 | 12.8 |
| Mount Kobau | 2F12CA | 5960 | 4/29 | 55 | 16.9 | 20.1 | 12.8 |

# Average based on 1961-1980 averages

WSFB-X4-L

# SNOW DATA TO MAY 1, 1984 - APPENDIX 3

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| **OKANOGAN RIVER (CONT.)** | | | | | | | |
| Mutton Creek No. 1 | 19A01 | 5700 | Not Measured | | | | 11.8 |
| Mutton Creek No.2 SP | 19A11 | 6000 | Not Measured | | | | New |
| Nickel Plate | 2G02CAN | 6200 | 4/29 | 28 | 8.0 | 8.3 | 8.1 |
| Oyama Lake | 2F19CAN | 4400 | 4/26 | 11 | 3.1 | 3.9 | 3.1 |
| Postill Lake | 2F07CAN | 4500 | 4/30 | 20 | 6.8 | 7.0 | 6.6 |
| Rusty Creek | 19A03 | 4000 | 4/26 | 0 | 0.0 | 2.5 | 0.7 |
| Salmon Meadows | 19A02 | 4500 | Not Measured | | | | 5.0 |
| Silver Star Mountain | 2F10CAN | 6050 | 4/29 | 74 | 30.7 | 36.8 | 28.3 |
| Summerland Reservoir | 2F02CAN | 4200 | 4/29 | 16 | 5.9 | 6.4 | 5.8 |
| Sunday Summit | 2G01CAN | 4300 | 4/26 | 0 | 0.0 | 0.0 | 1.1 |
| Trout Creek | 2F01CAN | 4700 | 4/29 | 6 | 1.6 | 2.7 | 5.2 |
| Vaseux Creek | 2F20CAN | 4600 | 4/30 | 20 | 6.4 | 7.6 | 2.5 |
| White Rocks Mountain | 2F09CAN | 6000 | 4/30 | 59 | 23.4 | 29.0 | 24.8 |
| **METHOW RIVER** | | | | | | | |
| Harts pass | 20A05A | 6500 | 4/26 | 95 | 37.0 | 44.2 | 48.9 |
| Mutton Creek NO. 1 | 19A01 | 5700 | Not Measured | | | 16.1 | 11.8 |
| Mutton Creek No. 2 SP | 19A11 | 6000 | Not Measured | | | | New |
| Rusty Creek | 19A03 | 4000 | 4/26 | 0 | 0.0 | 2.5 | 0.7 |
| Salmon Meadows | 19A02 | 4500 | Not Measured | | | 13.2 | 9.3 |
| **CHELAN LAKE BASIN** | | | | | | | |
| Cloudy Pass + | 20A22 | 6500 | Not Measured | | | | 35.2 |
| Lyman Lake | 20A23 | 5900 | 5/01 | | 68.8sp | 62.0 | 82.0 |
| Little Meadows + | 20A24a | 5275 | Not Measured | | | 37.6 | 37.6 |
| Mirror Lake | 30A39 | 5600 | 5/01 | | 32.2sp | | New |
| Park Creek Ridge | 20A12 | 4600 | 5/01 | | 34.7sp | 36.0 | 31.7 |
| Rainy Pass | 20A09 | 4780 | 4/26 | 79 | 33.0 | 39.0 | 43.1 |

# Average based on 1961-1980 averages
+ Aerial stadia observation

WSFB-X4-L

SNOW DATA TO MAY 1, 1984 - APPENDIX 4

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| ENTIAT RIVER | | | | | | | |
| Brief | 20B19 | 1600 | 4/30 | 0 | 0.0 | 0.0 | 3.8 |
| Entiat Meadows + | 20A33 | 4540 | 5/03 | 66 | 27.1 | 46.9 | 35.7 |
| Entiat River Trail + | 20A34 | 3325 | 5/03 | 12 | 5.0 | 0.0 | 9.1 |
| Fox Camp + | 20A36 | 6510 | 5/03 | 138 | 60.7 | 72.7 | 62.9 |
| Pope Ridge | 20B20 | 3450 | Not Measured | | | 10.3 | 9.4 |
| Pugh Ridge + | 20A32 | 6725 | 5/03 | 81 | 30.8 | 47.8 | 37.9 |
| Shady Pass | 20A37 | 6200 | 4/30 | 69 | 25.6 | 33.8 | 30.3 |
| Snow Brushy + | 20A35 | 3910 | 5/03 | 66 | 27.7 | 32.4 | 28.0 |
| Tommy Creek + | 20B21 | 4900 | 5/03 | 33 | 14.5 | 17.0 | 20.2 |
| WENATCHEE RIVER | | | | | | | |
| Berne Mill Creek | 21B23 | 3170 | 4/30 | 19 | 7.0 | 16.5 | 21.8 |
| Berne Mill Creek SP | 21B41 | 3240 | 4/30 | 19 | 7.0 | 9.1 | 17.7 |
| Blewett Pass No. 2 | 20B02 | 4270 | 4/30 | 15 | 6.3 | 12.5 | 9.6 |
| Chiwaukum G. S. | 20B16 | 1810 | 4/30 | 0 | 0.0 | | 1.5 |
| Lake Wenatchee | 20B05 | 1970 | Watershed Logged Discontinued | | | | |
| Lyman Lake | 20A23 | 5900 | 5/01 | | 68.8sp | 62.0 | 82.0 |
| Merritt | 20B18 | 2140 | 4/30 | 0 | 0.0 | . | 5.5 |
| Stevens Pass | 21B01 | 4070 | 4/30 | 93 | 41.5 | 40.5 | 54.3 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 4/30 | 56 | 22.7 | 22.0 | 34.5 |
| COLOCKUM CREEK | | | | | | | |
| Trough #2(SP) | 20B25 | 5310 | 4/30 | 7 | 2.3 | 18.9 | 6.9 |

+ Aerial stadia observation
# Average based on 1961-1980 averages

WSFB-X4-L

# SNOW DATA TO MAY 1 , 1984 - APPENDIX 5

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| SQUILCHUCK CREEK | | | | | | | |
| Beehive Springs | 20B03 | 4400 | 4/30 | 0 | 0.0 | 9.9 | 1.8 |
| Scout-a-Vista | 20B04 | 3400 | Not Measured | | | 0.0 | 0.3 |
| STEMILT CREEK | | | | | | | |
| Stimelt Slide | 20B06 | 5000 | 4/30 | 8 | 2.7 | | 6.8 |
| Upper Wheeler(SP) | 20B07 | 4400 | 4/30 | 24 | 8.4 | 13.6 | 1.0 |
| YAKIMA RIVER | | | | | | | |
| Ahtanum R.S. | 21C11 | 3100 | 5/01 | 0 | 0.0 | 0.0 | 0.0 |
| Big Boulder Creek | 21B09 | 3200 | 4/30 | 20 | 8.5 | 11.3 | 9.1 |
| Blewet Pass No. 2 | 20B02 | 4270 | 4/30 | 15 | 6.3 | 12.5 | 9.6 |
| Bumping Lake Old | 21C08 | 3450 | 4/13 | 32 | 10.8 | 8.1 | 9.0 |
| | | | 4/27 | 8 | 3.2 | 8.1 | 9.0 |
| Bumping Lake New | 21C36 | 3400 | 4/13 | 36 | 13.1 | 13.9 | 13.6 |
| | | | 4/27 | 20 | 8.4 | 13.9 | 13.6 |
| Cayuse Pass | 21C06 | 5300 | 4/27 | 184 | 83.0 | | 90.6 |
| Colockum Pass | 20B09 | 5370 | Not Measured | | | | |
| Corral Pass | 21B13 | 6000 | 5/01 | | 8.1sp | 19.2 | 37.7 |
| Fish Lake | 21B04 | 3371 | 4/30 | 47 | 19.8 | 29.6 | 26.4 |
| Green Lake | 21C10 | 6000 | 5/01 | | 20.9sp | 34.8 | |
| Grouse Camp | 20B11 | 5385 | Not Measured | | | 29.8 | 17.1 |
| Lake Cle Elum | 21B14 | 2200 | 5/01 | 0 | 0.0 | 0.0 | 5.5 |
| Morse Lake | 21C17 | 5400 | 5/01 | | 65.2sp | 80.5 | 60.9 |
| Olallie Meadows | 21B02 | 3625 | 4/28 | 63 | 30.2 | 12.8 | 50.1 |
| Stampede Pass | 21B10 | 3860 | 5/01 | 93 | 48.0 | 28.6 | 41.2 |
| Tunnel Avenue | 21B08 | 2450 | 4/11 | 34 | 12.2 | | 15.4 |
| | | | 5/01 | 9 | 3.7 | | 15.4 |
| White Pass E. Side | 21C28 | 4500 | 4/13 | 74 | 21.8 | 20.7 | 26.1 |
| | | | 4/26 | 59 | 23.4 | 20.7 | 26.1 |

# Average based on 1961-1980 averages
sp Snow Pillow Reading

WSFB-X4-L

SNOW DATA TO MAY 1, 1984 - APPENDIX 6

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| ORAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Ahtanum R. S. | 21C11 | 3100 | 5/01 | 0 | 0.0 | 0.0 | 0.0 |
| Green Lake | 21C10 | 6000 | Not Measured | | 20.9sp | 34.8 | |
| LOWER COLUMBIA DRAINAGE | | | | | | | |
| MILL CREEK | | | | | | | |
| High Ridge SP | 18D19 | 4890 | 4/30 GT | 75 | 34.1 | 24.0 | 27.0 |
| Touchet # 2 SP | 17C55 | 5530 | 5/01 | | 30.1sp | 31.9 | |
| COWLITZ RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | 4/27 | 184 | 83.0 | | 90.6 |
| White Pass E. Side | 21C28 | 4500 | 4/13 | 74 | 21.8 | 20.7 | 26.1 |
| | | | 4/26 | 59 | 23.4 | 20.7 | 26.1 |
| PUGET SOUND DRAINAGE | | | | | | | |
| WHITE RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | 4/27 | 184 | 83.0 | | 90.6 |
| Corral Pass | 21B13 | 6000 | 5/01 | | 28.4sp | 19.2 | 37.7 |
| Morse Lake | 21C17 | 5400 | 5/01 | | 65.2sp | 80.5 | 60.9 |
| GREEN RIVER | | | | | | | |
| Airstrip | 21B24 | 1800 | 4/29 | 0 | | 0.0 | |
| Charley Creek | 21B25 | 1200 | 4/29 | 0 | | 0.0 | 0.0 |
| Cougar Mountain | 21B42 | 3200 | 5/01 | | 15.8sp | 0.0 | 16.4 |
| Grass Mtn. No. 2 | 21B27 | 2900 | 4/29 | 3 | 1.1 | 0.0 | 2.1 |
| Grass Mtn. No. 3 | 21B28 | 2100 | 4/29 | 0 | | 0.0 | |
| Lester Creek | 21B29 | 3100 | 4/29 | 25 | 14.0 | 5.0 | 14.5 |
| Lynn Lake | 21B50 | 4000 | Not Measured | | | 0.0 | 3.2 |
| Sawmill Ridge | 21B31 | 4700 | 4/29 | 73 | 29.2 | 22.0 | |
| Stampede Pass | 21B10 | 3860 | 5/01 | 93 | 48.0 | 28.6 | 41.2 |
| Twin Camp | 21C30 | 4100 | 4/29 | 43 | 17.8 | 10.8 | 13.5 |

# Average based on 1961-1980 averages
sp Snow Pillow Reading

WSFB-X4-L

# SNOW DATA TO MAY 1, 1984 - APPENDIX 7

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average# |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows | 21B02 | 3625 | 4/28 | 63 | 30.2 | 12.8 | 50.1 |
| SKYKOMISH RIVER | | | | | | | |
| Stevens Pass | 21B01 | 4070 | 4/30 | 93 | 41.5 | 40.5 | 54.3 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 4/30 | 56 | 22.7 | 22.0 | 34.5 |
| SKAGIT RIVER | | | | | | | |
| Beaver Creek Trail | 21A04 | 2200 | 4/26 | 0 | 0.0 | 0.0 | 5.5 |
| Beaver Pass | 21A01 | 3680 | 4/26 | 44 | 13.0 | 28.3 | 31.3 |
| Brown Top Ridge | 21A28 | 6000 | 4/26 | 131 | 53.2 | 50.4 | 67.5 |
| Devils Park | 20A04 | 5900 | 4/25 | 82 | 29.6 | 40.4 | 48.2 |
| Freezeout Creek Trail | 20A01 | 3500 | 4/26 | 4 | 1.1 | 4.9 | 8.4 |
| Freezeout Meadows New | 20A38 | 5000 | 4/26 | 51 | 19.4 | 37.1 | 35.8 |
| Granite Creek | 21A29 | 3500 | 4/26 | 16 | 5.4 | 7.3 | 18.2 |
| Harts Pass | 20A05A | 6500 | 4/26 | 95 | 37.0 | 44.2 | 48.9 |
| Klesilkwa | 3D03ACA | 3700 | 4/25 | 0 | 0.0 | 0.0 | 7.2 |
| Lightning Lake | 3D02CAN | 4000 | 4/25 | 18 | 5.9 | 9.8 | 11.5 |
| Lyman Lake | 20A23 | 5900 | 5/01 | | 68.8sp | 62.0 | 82.0 |
| Meadow Cabins | 20A08 | 1900 | 4/25 | 0 | 0.0 | 0.0 | 5.8 |
| New Hozomeen Lake | 21A30 | 2800 | 4/26 | 0 | 0.0 | 0.0 | 7.8 |
| Rainy Pass | 20A09 | 4780 | 4/26 | 79 | 33.0 | 39.0 | 43.1 |
| Thunder Basin | 20A07 | 4200 | 4/25 | 32 | 10.2 | 19.6 | 24.3 |

# Average based on 1961-1980 averages
sp Snow Pillow Reading

WSFB-X4-L

# SNOW DATA TO MAY 1, 1984 - APPENDIX 8

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| **BAKER RIVER** | | | | | | | |
| Dock Butte + | 20A11A | 3800 | 4/30 | 136 | 58.0 | 48.0 | 74.1 |
| Easy Pass + | 21A07A | 5200 | 4/30 | 169 | 74.0 | 73.0 | 91.2 |
| Jasper Pass + | 21A06A | 5400 | 4/30 | 182 | 76.0 | 85. | 95.3 |
| Martin Lake | 21A09A | 3600 | 4/30 | 158 | 68.0 | 68.0 | 81.0 |
| Mt. Blum + | 21A18A | 5800 | 4/30 | 156 | 69.0 | 69.0 | 70.9 |
| Rocky Creek | 21A12A | 2100 | 4/30 | 12 | 5.0 | 0.0 | 22.3 |
| Schreibers Meadow | 21A10A | 3400 | 4/30 | 90 | 40.0 | 34.0 | 63.9 |
| S.F. Thunder Creek + | 21A14A | 2200 | 4/30 | 0 | 0.0 | 0.0 | 1.5 |
| Watson Lake | 21A08A | 4500 | 4/30 | 132 | 55.0 | 57.0 | 73.2 |
| **OLYMPIC PENINSULA DRAINAGE** | | | | | | | |
| **DUNGENESS RIVER** | | | | | | | |
| Deer Park | 23B04 | 5200 | 4/30 | 28 | 12.0 | 25.4 | 22.5 |
| **MORSE CREEK** | | | | | | | |
| Cox Valley | 23B14 | 4500 | 4/29 | 77 | 34.4 | 45.8 | 42.0 |
| **ELWHA RIVER** | | | | | | | |
| Hurricane | 23B03 | 4500 | 4/27 | 43 | 16.5 | 22.2 | 25.6 |

+ Aerial stadia observation
# Average based on 1961-1980 average

WSFB-X4-L

# SNOTEL READINGS, MAY 1, 1984 - APPENDIX 1

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| PEND OREILLE RIVER | | | | | | | |
| Bunchgrass Meadow | 17A01 | 5000 | 4/15 | | 30.7 | 39.5 | |
| | GT | | 5/02 | 83 | 29.2 | 27.12 | |
| | | | 5/01 | | 28.4 | 40.9 | |
| OKANOGAN & METHOW RIVERS | | | | | | | |
| Harts Pass | 20A05 | 6500 | 4/16 | | 38.2 | 51.1 | |
| | GT | | 4/26 | 95 | 37.0 | 44.2 | |
| | | | 5/01 | | 39.9 | 50.5 | |
| Salmon Meadow | 19A02 | 4500 | 4/16 | | 19.9 | 33.3 | |
| | | | 5/01 | | 14.6 | 17.1 | |
| CHELAN LAKE BASIN | | | | | | | |
| Lyman Lake | 20A23 | 5900 | 4/15 | | 68.9 | 68.7 | |
| | GT | | | | | | |
| | | | 5/01 | | 68.8 | 64.0 | |
| Mirror Lake | 20A39 | 5600 | 4/15 | | 30.2 | | |
| | GT | | | | | | |
| | | | 5/01 | | 32.2 | | |
| Park Creek Ridge | 20A12 | 4600 | 4/18 | | 35.6 | 49.5 | |
| | | | 5/01 | | 34.7 | 41.5 | |
| Rainy Pass | 20A09 | 4780 | 4/15 | | 34.4 | 47.0 | |
| | GT | | 4/26 | 79 | 33.0 | 39.0 | |
| | | | 4/30 | | 34.3 | 42.6 | |
| ENTIAT RIVER | | | | | | | |
| Pope Ridge | 20B20 | 3450 | 4/15 | | 13.0 | 14.5 | |
| | GT | | | | | | |
| | | | 5/01 | | 6.9 | 1.9 | |
| WENATCHEE RIVER | | | | | | | |
| Blewett Pass | 20B02 | 4270 | 4/15 | | 18.8 | 21.0 | |
| | GT | | 4/26 | 25 | 9.4 | 12.5 | |
| | | | 5/01 | | 12.8 | 11.9 | |
| Lyman Lake | 20A23 | 5900 | 4/15 | | 68.9 | 68.7 | |
| | GT | | | | | | |
| | | | 5/01 | | 68.8 | 64.0 | |
| Stevens Pass | 21B01 | 4070 | 4/15 | | 39.7 | 24.5 | |
| | GT | | | | | | |
| | | | 5/01 | | 37.1 | 16.1 | |
| Trough # 2 | 20B25 | 5300 | 4/15 | | 2.7 | 24.9 | |
| | GT | | 4/30 | | (2.5) | 25.3 | |
| | | | 5/01 | | 0.4 | 18.9 | |

GT = Ground Truth measurement at SNOTEL site

WSFB-X4-L

# SNOTEL READINGS, MAY 1, 1984 - APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE NAME | Number | Elevation | THIS YEAR Date of Survey | Snow Depth (Inches) | Water Content (Inches) | PAST RECORD Water Content (inches) Last Year | Average # |
|---|---|---|---|---|---|---|---|
| COLOCKUM CREEK | | | | | | | |
| Trough # 2 | 20B25 | 5300 | 4/15 | | 2.7 | | 24.9 |
| | GT | | 4/30 | 6 | (2.5) | | 25.3 |
| | | | 5/01 | | 0.4 | | 18.9 |
| STEMILT CREEK | | | | | | | |
| Upper Wheeler | 20B07 | 4400 | 4/15 | | 14.6 | | 19.6 |
| | GT | | 4/30 | 38 | (11.3) | | 16.8 |
| | | | 5/01 | | 9.3 | | 13.6 |
| YAKIMA RIVER | | | | | | | |
| Big Boulder Creek | 21B09 | 3200 GT | 4/15 | | 14.3 | | 15.6 |
| | | | 5/01 | | 17.6 | | 4.8 |
| Bumping Ridge | 21C38 GT | 4600 | 4/15 | | 31.2 | | |
| | | | 5/01 | | 30.6 | | |
| Corral Pass | 21B13 | 6000 | 4/15 | | 10.5 | | 24.4 |
| | | | 5/01 | | 9.1 | | 19.2 |
| Fish Lake | 21B04 GT | 3371 | 4/15 | | 32.2 | | |
| | | | 5/01 | | 29.2 | | |
| Green Lake | 21C10 GT | 6000 | 4/15 | | 14.7 | | 35.2 |
| | | | 5/01 | | 20.8 | | 34.8 |
| Grouse Camp | 20B11 GT | 5385 | 4/15 | | 19.8. | | 29.4 |
| | | | 4/30 | | 16.2 | | 30.9 |
| Morse Lake | 21C17 | 5400 | 4/15 | | 61.8 | | 81.7 |
| | | | 5/01 | | 65.2 | | 80.5 |
| White Pass E. Side | 21C28 GT | 4500 | 4/15 | | 26.6 | | 23.9 |
| | | | 5/01 | | 26.8 | | 20.7 |

GT = Ground Truth measurement at SNOTEL site

WSFB-X4-L

# SNOTEL READINGS, MAY 1, 1984 - APPENDIX 3

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE NAME | Number | Elevation | THIS YEAR Date of Survey | Snow Depth (Inches) | Water Content (Inches) | PAST RECORD Water Content (inches) Last Year | Average # |
|---|---|---|---|---|---|---|---|
| AHTANUM CREEK | | | | | | | |
| Green Lake | 21C10 GT | 6000 | 4/15 | | 19.7 | | 35.2 |
| | | | 5/01 | | 20.9 | | 34.8 |
| TOUCHET RIVER | | | | | | | |
| Touchet # 2 | 17C5 GT | 5530 | 4/16 | | 31.7 | | 39.2 |
| | | | 5/01 | | 30.1 | | 31.9 |
| LEWIS RIVER | | | | | | | |
| June Lake | 22C09 GT | 3200 | 4/15 | | | | 25.5 |
| | | | 5/01 | | | | |
| Lone Pine Shelter | 21C26 GT | 3800 | 4/15 | | 40.0 | | 46.8 |
| | | | 5/01 | | 39.8 | | 42.5 |
| Plains of Abraham | 22C01 | 4400 | 4/15 | | 94.7 | | |
| | | | 5/01 | | 99.6 | | |
| Sheep Canyon | 22C10 | 4050 | 4/15 | | 49.8 | | |
| | | | 4/29 | | 42.4 | | |
| Spencer Meadow | 21C20 | 3400 | 4/15 | | 25.1 | | 32.0 |
| | | | 5/01 | | | | 22.6 |
| Surprise Lake | 21C13 GT | 4250 | 4/16 | | 59.6 | | 58.7 |
| | | | 5/01 | | 58.0 | | 51.8 |
| COWLITZ RIVER | | | | | | | |
| Pigtail Peak | 21C33 GT | 5900 | 4/15 | | 49.7 | | 48.0 |
| | | | 5/01 | | 51.0 | | 46.1 |
| Potato Hill | 21C14 GT | 4500 | 4/15 | | 22.4 | | |
| | | | 4/30 | | 20.5 | | |
| Sheep Canyon | 22C10 | 4050 | 4/15 | | 49.8 | | |
| | | | 4/29 | | 42.4 | | |
| Strawberry Landing | 22C08 GT | 3280 | 4/15 | | | | 40.2 |
| | | | 5/01 | | | | 37.9 |
| Steppes PC | 22C11 | | 4/15 | | 69.7 | | |
| | | | 4/30 | | | | |
| Spirit PC | 22C12 | | 4/15 | | .6 | | |
| | | | 4/30 | | | | |

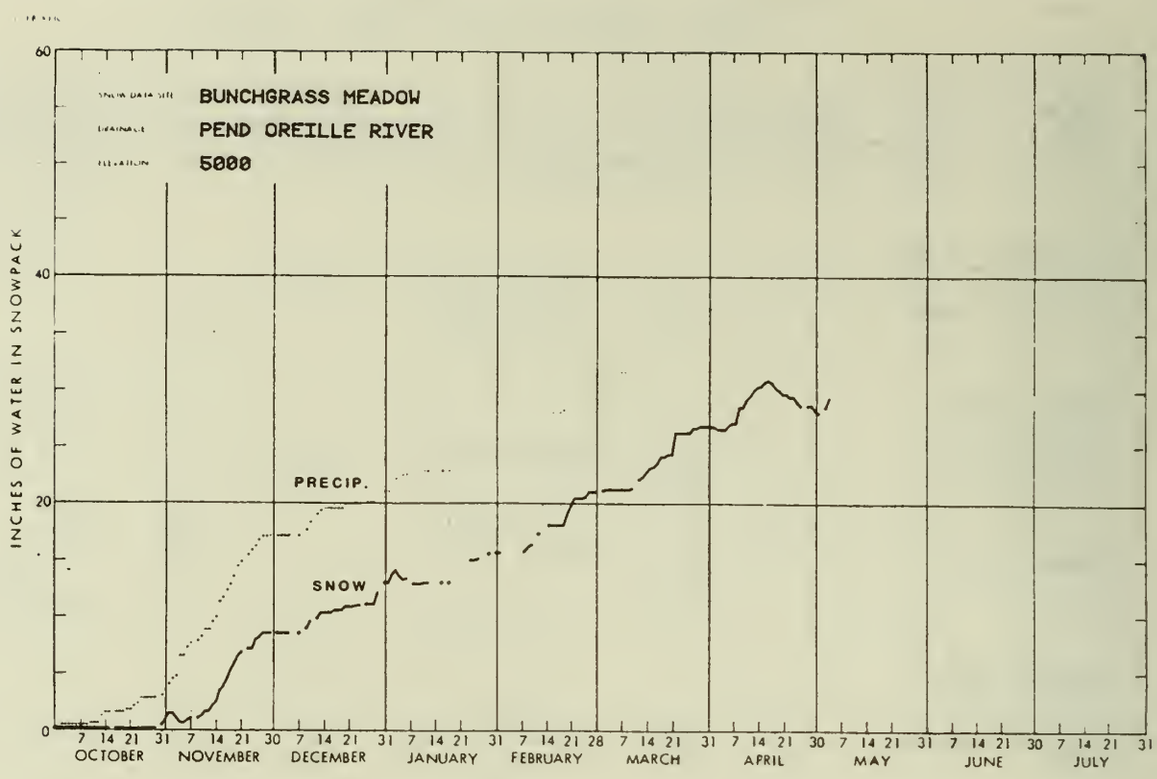
GT = Ground Truth measurement at SNOTEL sites

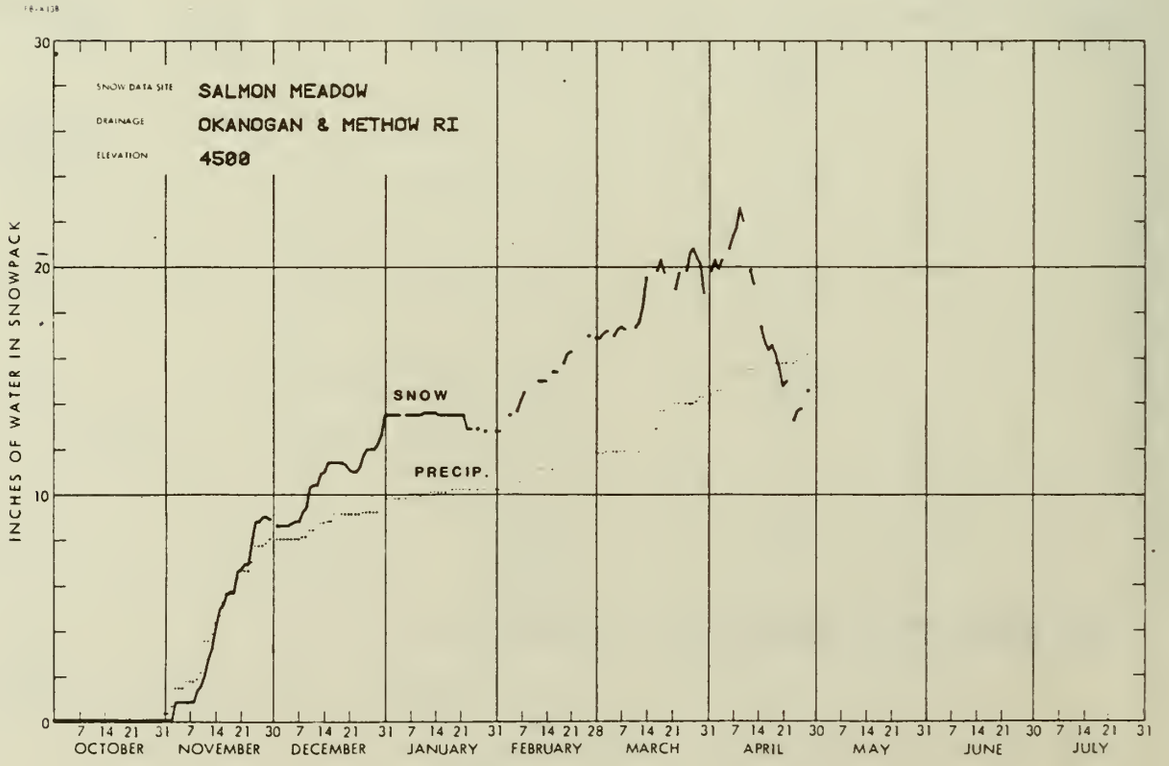
WSFB-X4-L

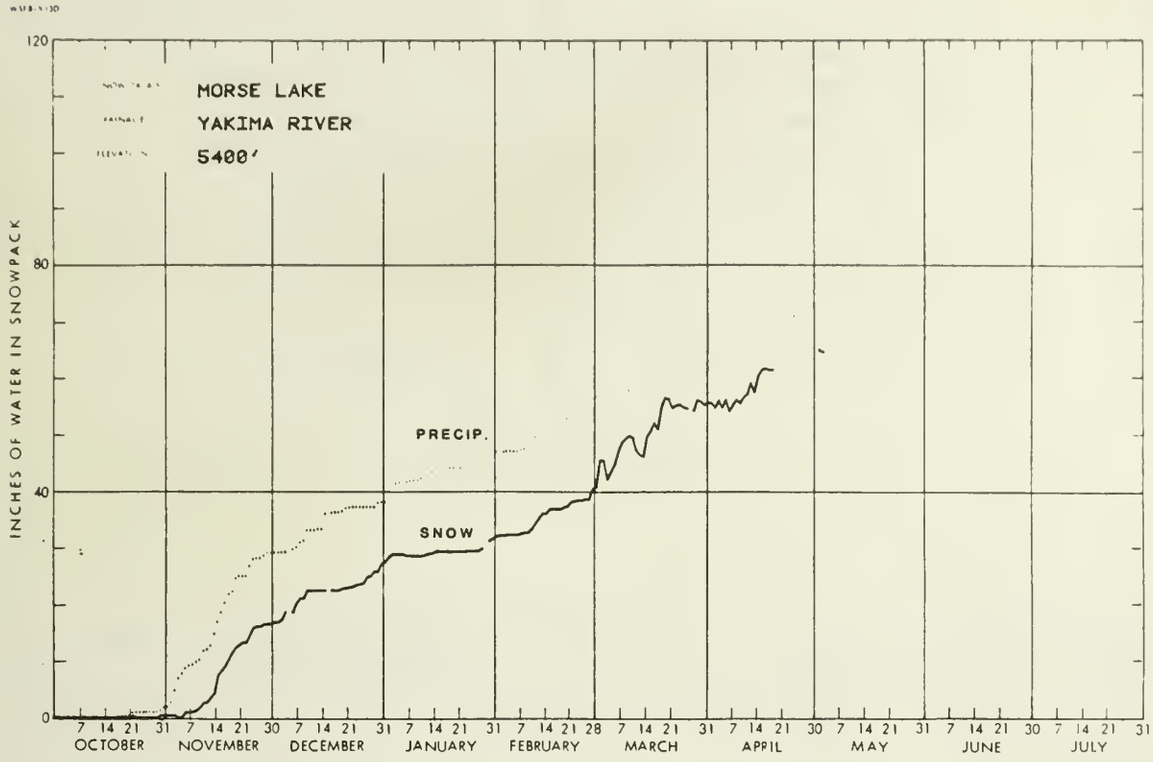
# SNOTEL READINGS, MAY 1,1984 - APPENDIX 4

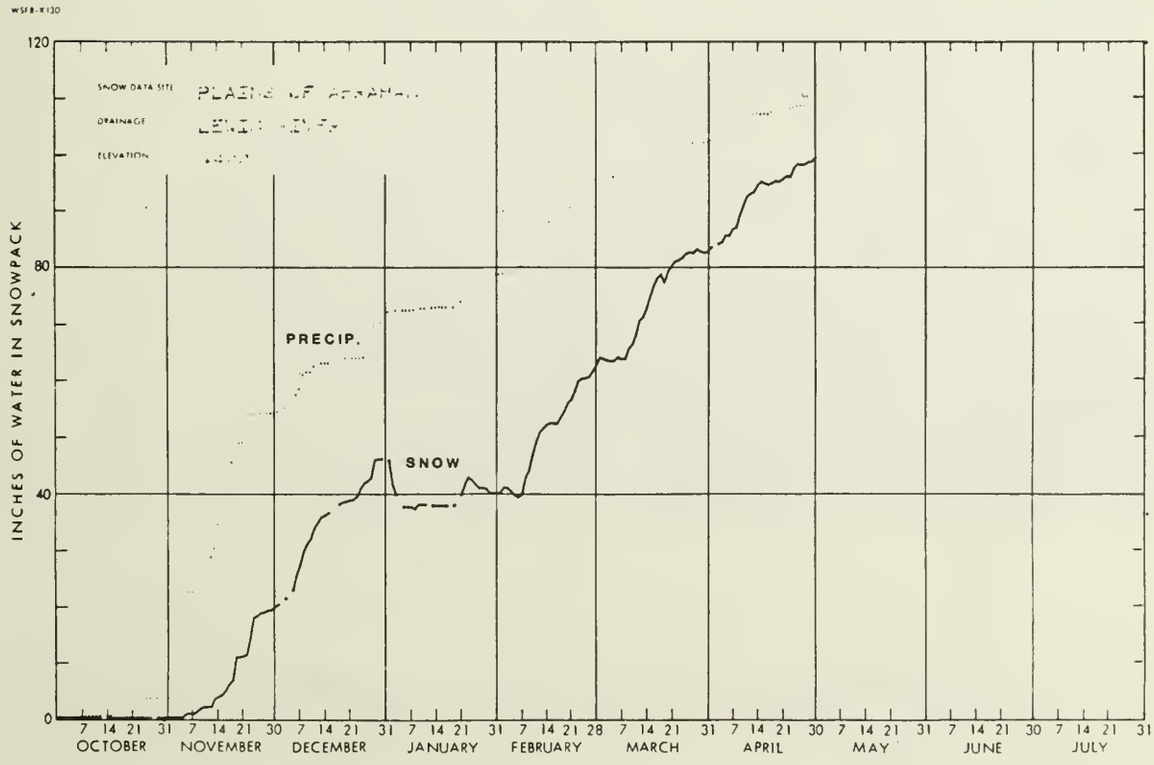
| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| NISQUALLY RIVER | | | | | | | |
| Paradise Park | 21C35 | 5500 | 4/20 | | 18.0 | | |
| | | | 5/01 | | 16.6 | | |
| WHITE RIVER | | | | | | | |
| Corral Pass | 21B13 GT | 6000 | 4/15 | | 10.5 | 24.4 | |
| | | | 5/01 | | 8.1 | 19.2 | |
| Morse Lake | 21C17 GT | 5400 | 4/15 | | 61.8 | 81.7 | |
| | | | 5/01 | | 63.2 | 80.5 | |
| GREEN RIVER | | | | | | | |
| Cougar Mountain | 21B42 GT | 3200 | 4/15 | | 19.1 | 0.2 | |
| | | | 4/30 | | 16.1 | 0.0 | |
| Stampede Pass | 21B10 GT | 3960 | 4/15 | | 48.0 | 39.4 | |
| | | | 5/01 | 93 | 48.0 | 35.0 | |
| | | | 5/01 | | 46.8 | 33.5 | |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows East | 21B55 | 3960 | 4/14 | | 57.4 | 51.6 | |
| | | | 5/01 | | 56.3 | 46.2 | |

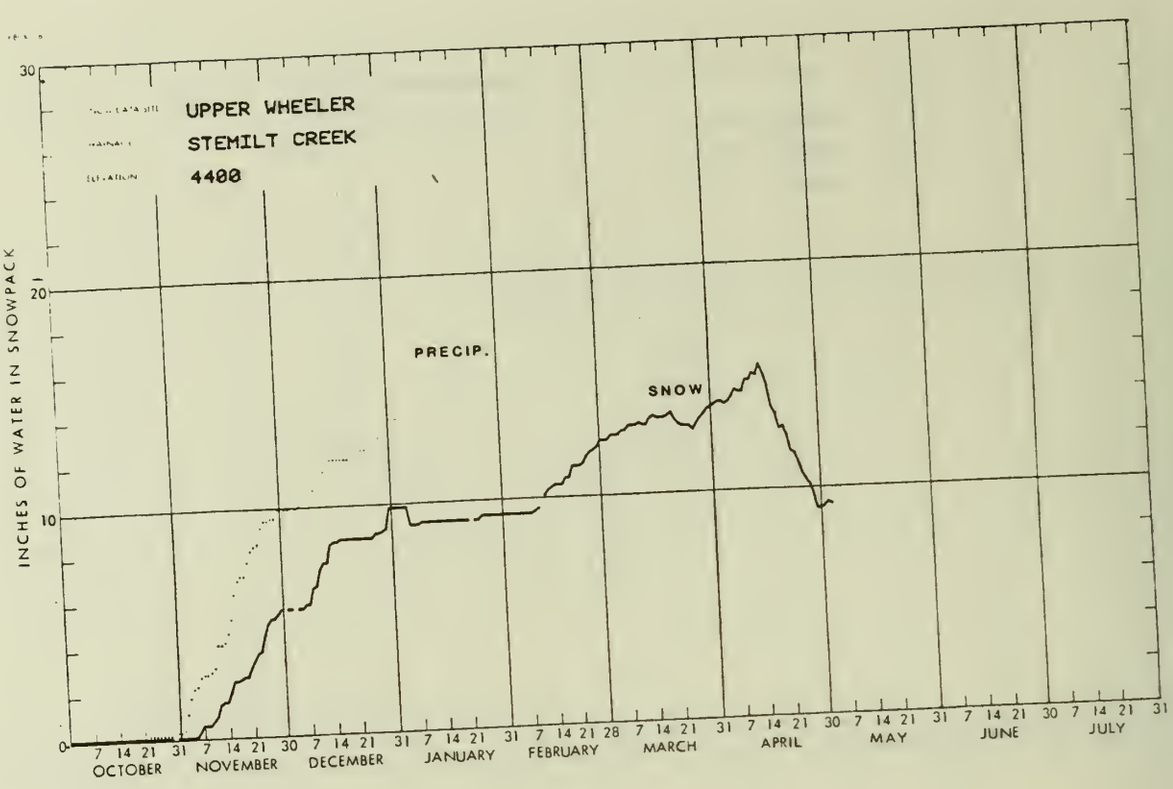
GT = Ground Truth measurements at SNOTEL sites

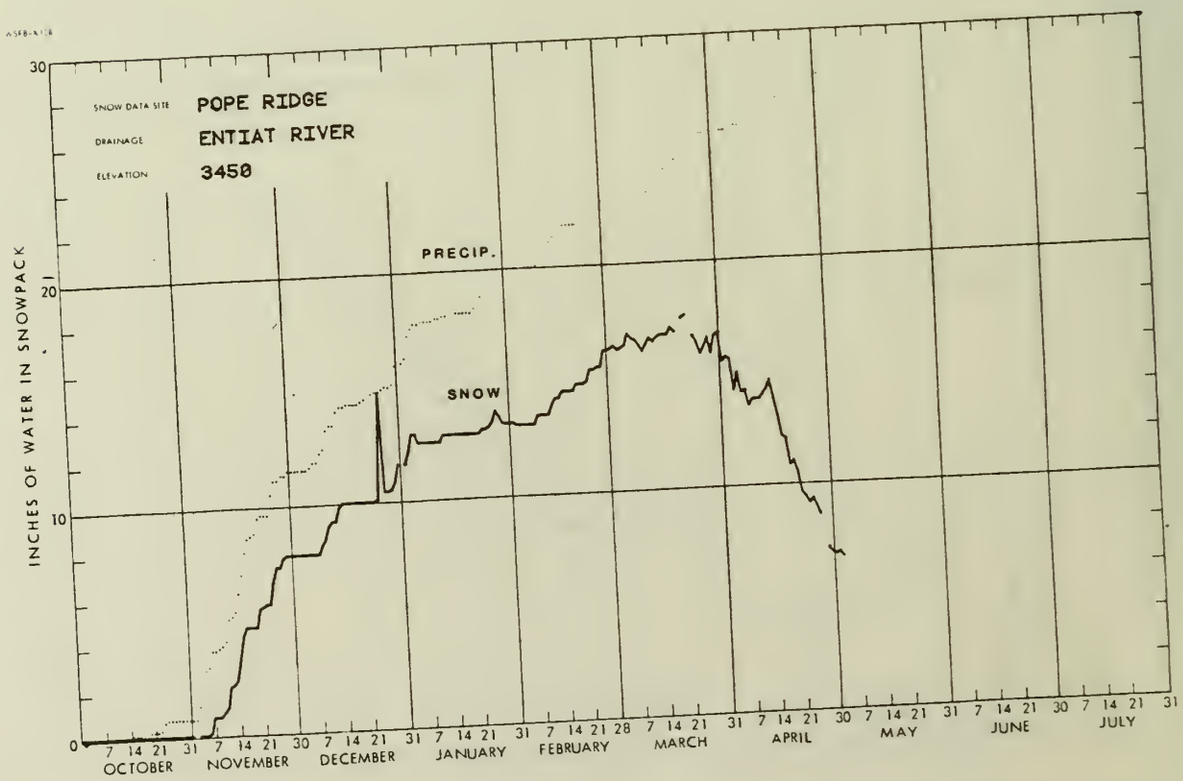

BUNCHGRASS MEADOW
PEND OREILLE RIVER
5000
PRECIP.
SNOW
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


SALMON MEADOW
OKANOGAN & METHOW RI
4500
SNOW
PRECIP.
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


MORSE LAKE
YAKIMA RIVER
5400'
PRECIP.
SNOW
INCHES OF WATER IN SNOWPACK
0
40
80
120
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
DRAINAGE
ELEVATION
PRECIP.
SNOW
INCHES OF WATER IN SNOWPACK
0
40
80
120
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


UPPER WHEELER
STEMILT CREEK
4400
PRECIP.
SNOW
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
POPE RIDGE
DRAINAGE
ENTIAT RIVER
ELEVATION
3450
PRECIP.
SNOW
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
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MARCH
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JULY

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United States
Department of
Agriculture

**Soil
Conservation
Service**

Spokane,
Washington

# Water Supply Outlook for Washington

## as of JUNE 1, 1984

The Library of the
JUL 11 1984
University of Illinois
at Urbana-Champaign

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: "Spring is on its way"

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE | ADDRESS |
|---|---|
| Alaska | Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504 |
| Arizona | Room 3008, Federal Building 230 N. First Ave., Phoenix, Arizona 85025 |
| Colorado (N. Mex.) | P.O. Box 17107, Denver, Colorado 80217 |
| Idaho | Room 345, 304 N. 8th St., Boise, Idaho 83702 |
| Montana | P.O. Box 98, Bozeman, Montana 59715 |
| Nevada | P.O. Box 4850, Reno, Nevada 89505 |
| Oregon | 1220 S. W. Third Ave., Portland, Oregon 97204 |
| Utah | 4402 Federal Bldg., 125 South State St., Salt Lake City, Utah 84147 |
| Washington | 360 U.S. Court House, Spokane, Washington 99201 |
| Wyoming | P.O. Box 2440, Casper, Wyoming 82601 |

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 — for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 — for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 — and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

# WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS


ISSUED BY

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# WATER SUPPLY OUTLOOK

State of Washington

JUNE 1, 1984

Water supply forecasts for most of Washington continued much the same as last month. Water users in the Olympic's and the Puget Sound areas can still expect below normal runoff this spring and summer; however, cool May weather and precipitation averaging 250% of normal have improved the outlook. The mountain snowpack was generally below average most of the winter. Precipitation was above average over the state during May, with the Yakima region having above 300% of normal at the reservoir sites for the month. There continued to be some improvement in the snow cover over the Cascade Mountain range. Snow cover is below average in the Spokane, Pend Oreille, Wenatchee, Entiat and Methow Rivers. The Northwest Cascade slopes show well below average snowpack. Fall and winter precipitation was above normal in all sections of the state. Reservoir storage continues very good for June 1. Streamflow for May was below average due to the below normal temperatures.

**********

THIS IS THE LAST WATER SUPPY REPORT FOR 1984. IF YOU WISH TO RECEIVE THESE REPORTS NEXT YEAR, PLEASE RETURN THE BACK COVER OF THE MAY 1 REPORT IF YOU HAVE NOT ALREADY DONE SO.

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## SNOW COVER

Only a few snow courses are measured during the June 1st period. Snow is gone from the low elevation, remaining at only those areas above 4300 feet and the north facing slopes. Twenty-five of the 28 reporting SNOTEL sites are still reporting snow water. The below average temperatures for May retarded the snowmelt improving the upper elevation snowpack.

## PRECIPITATION

May precipitation was above average over the state, with Northeastern Washington at 141%, Southeastern Washington at 130%, the Southwest Cascade at 224%, and the Okanogan area at 146%.

Precipitation during the November-March winter period has been above average over the entire state except the Southwest Cascade area. During this period the Puget Sound area received 63.54 inches, 102% of normal. The Yakima area received 30.02 inches, 101% of normal. Precipitation in the northeastern area was 139% of normal.

## RESERVOIR STORAGE

June 1 stored water supplies continue very good within the irrigated sections of the state. The Yakima irrigation reservoirs are storing 1,050,000 acre feet of water compared to the June 1 average of 922,100, or 116% of normal. The reservoirs in the Okanogan Irrigation District are at capacity. Lake Chelan at 341,800 acre-feet, is 76% of normal being held down by a late snowmelt.

## STREAMFLOW

Below normal May temperatures have retarded the snowmelt keeping stream flows low during May over most of the state. Streams in the state having below average flows were the Pend Oreille River at 68%, Spokane River at 83%, Yakima River at 67% and the Wenatchee River at 60%. Above average runoff for May included the Grande Ronde at 190%, the Cowlitz River at 126%, and the Walla Walla River at 128%.

There are no further forecasts being made for Washington for the June report. The May reports for the Puget Sound Rivers are still forecast below average. Forecasts for spring and summer streamflow will be within 20% of average over most of the state. The forecasts for the streams in the Yakima Basin remain nearly constant with 80% at Parker and Cle Elum. Late snow reports on the Green River for May show an increase in the snowpack and a revised forecast of near normal runoff.

RESERVOIR STORAGE - 1000 Acre Feet

| BASIN OR STREAM | RESERVOIR | USABLE 1/ CAPACITY | Measured (April) 1984 | 1983 | 1982 | Normal* |
|---|---|---|---|---|---|---|
| | | COLUMBIA | | | | |
| Spokane | Coeur d'Alene Lake | 225.1 | 289.5 | 235.2 | 238.0 | 225.0 |
| Columbia | Franklin D. Roosevelt Lake | 5232.0 | 2389.3 | 2350.1 | 2340.5 | 2565.6 |
| Columbia | Banks Lake | 714.9 | 674.8 | 648.0 | 632.0 | 406.2 |
| Okanogan | Conconully Reservoir | 13.0 | 13.3 | 13.5 | 13.1 | 9.1 |
| Okanogan | Conconully Lake | 10.5 | 10.4 | 10.4 | 10.4 | 9.4 |
| Chelan | Lake Chelan | 676.1 | 341.8 | 566.0 | 391.7 | 450.6 |
| | | YAKIMA | | | | |
| Yakima | Keechelus Lake | 157.8 | 157.2 | 156.8 | 149.2 | 139.6 |
| Kachess | Kachess Lake | 239.0 | 238.2 | 238.6 | 229.6 | 217.1 |
| Cle Elum | Lake Cle Elum | 436.9 | 421.8 | 435.8 | 326.5 | 367.9 |
| Bumping | Bumping Lake | 33.7 | 33.6 | 33.6 | 29.8 | 25.4 |
| Tieton | Rimrock Lake | 198.0 | 195.0 | 195.0 | 189.8 | 160.2 |
| | | PUGET SOUND | | | | |
| Skagit | Ross Reservoir | 1404.1 | 921.5 | 1001.7 | 855.6 | 1033.9 |
| Skagit | Diablo Reservoir | 90.6 | 82.9 | 85.9 | 87.4 | 86.1 |
| Skagit | Gorge Reservoir | 9.8 | 7.4 | 7.4 | 7.9 | 8.3 |

1/ Based on Active Storage
* 15-yr. Average 1963-1977

## PRECIPITATION 1/

### Division Average Observations and Departures

| Drainage Divisions | Fall Sept-Oct 1983 2/ Observed | Fall Departure | Winter Nov. 1983 - Mar. 1984 2/ Observed | Winter Departure | Spring /Apr-May 1984 Observed | Spring Departure |
|---|---|---|---|---|---|---|
| Northeastern Wash | 1.55 | -1.55 | 11.78 | +2.38 | 4.38 | +0.05 |
| Southeastern Wash | 2.54 | -0.06 | 12.22 | +1.79 | 3.55 | +0.62 |
| East Slope Cascades | 3.76 | -0.99 | 28.14 | +0.61 | 4.79 | +1.48 |
| North Central Wash | 1.45 | -0.14 | 7.42 | +0.88 | 2.06 | +0.29 |
| Northwest Cascades | 7.97 | -5.24 | 57.50 | +2.11 | 15.04 | +4.64 |
| Southwest Cascades | 5.36 | -3.32 | 40.99 | -0.65 | 10.74 | +3.44 |

Northeastern Washington - Lower Spokane, Colville, Sandpoil, and Lower Kettle Drainages

Southeastern Washington - Touchet, Tucannon, and Palouse Drainages

East Slope Cascades - Yakima, Wenatachee, and Chelan Drainages

North Central Washington - Methow and Okanogan Drainages

Northwest Slope Cascades - Puget Sound Drainages

Southwest Slope Cascades - Lower Columbia Drainages

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-1972) drainage division average.

WSFB-X4-L

# SNOW DATA TO JUNE 1, 1984 - APPENDIX 1

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| **UPPER COLUMBIA DRAINAGE** | | | | | | | |
| **PEND OREILLE RIVER** | | | | | | | |
| Benton Meadow | 16A02 | 2344 | 4/30 | 0 | 0.0 | 0.0 | 0.0 |
| Benton Spring | 16A03 | 4900 | Not Measured | | | | |
| Boyer Mtn | 17A02 | 5250 | " " | | | | |
| Bunchgrass Meadow | 17A01 | 5000 | 6/01 | | 20.3sp | | |
| Chewelah | 17A04 | 4925 | Not Measured | | | | |
| Heart Lake Trail | 14C10 | 4800 | " " | | | | |
| Hoodoo Basin | 15C10 | 6000 | 6/01 | 71 | 35.8 | 29.9 | 36.3 |
| Hoodoo Creek | 15C01 | 5900 | 6/01 | 66 | 31.6 | 27.6 | 35.6 |
| Lookout | 15B02 | 5250 | 6/01 | 18 | 9.0 | 2.4 | 13.3 |
| Nelson | 2D04CA | 3050 | 6/01 | 0 | 0.0 | 0.0 | 0.0 |
| Schweitzer Bowl | 16A06 | 4500 | 5/30 | 12 | 5.8 | 0.0 | 1.8 |
| Schweitzer Ridge | 16A05 | 6100 | 5/30 | 81 | 40.6 | 30.6 | 29.9 |
| **KETTLE RIVER** | | | | | | | |
| Barnes Creek | 2B06CA | 5300 | Not Measured | | | | |
| Big White Mtn. | 2E03CA | 5500 | " " | | | | |
| Butte Creek | 18A03 | 4070 | " " | | | | |
| Carmi | 2E02CA | 4100 | " " | | | | |
| Farron #1 | 2B02CA | 4000 | " " | | | | |
| Farron #2 | 2B02ACA | 4000 | " " | | | | |
| Goat Creek | 18A04 | 3595 | " " | | | | |
| Monashee Pass | 2E01CA | 4500 | 5/29 | 17 | 7.2 | 4.9 | 2.0 |
| Summit G.S. | 18A05 | 2150 | Not Measured | | | | 5.8 |
| Trapping Creek Lower | 2E05CA | 3050 | " " | | | | |
| Trapping Creek Upper | 2E04CA | 4450 | " " | | | | |
| **COLVILLE RIVER** | | | | | | | |
| Baird | 17A06 | 3215 | Not Measured | | | | |
| Chewelah | 17A04 | 4925 | " " | | | | |
| Togo | 18A10 | 3370 | " " | | | | |

# Average based on 1961-1980 averages
sp SNOTEL data

WSFB-X4-L

# SNOW DATA TO JUNE 1, 1984 - APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) Last Year | Water Content (Inches) Average # |
| **SPOKANE RIVER** | | | | | | | |
| Above Burke | 15B08 | 4100 | Not Measured | | | | |
| 4th of July Summit | 16B03 | 3100 | 6/01 | 0 | 0.0 | 0.0 | 0.0 |
| Lookout | 15B02 | 5250 | 6/01 | 18 | 9.0 | 2.4 | 13.3 |
| Mosquito Ridge | 16A04 | 5110 | Not Measured | | | | |
| Sherwin | 16C01 | 3200 | " " | | | | |
| Sunset | 15B09A | 5600 | " " | | | | |
| Lost lake | 15B14A | 6000 | 5/30 | 96 | 42.1 | 36.0 | 43.4 |
| **NEWMAN LAKE** | | | | | | | |
| Ragged Ridge | 17B02 | 3333 | 5/01 | 0 | 0.0 | 0.0 | New |
| **OKANOGAN RIVER** | | | | | | | |
| Aberdeen Lake | 1F01CA | 4300 | Not Measured | | | | |
| Blackwall Peak | 2G03CA | 6250 | 5/31 | 63 | 27.2 | 31.9 | 34.8 |
| Brenda Mine | 2F18CA | 4800 | 5/31 | 8 | 2.9 | 0.0 | 0.0 |
| Brookmere | 1C01CA | 3200 | Not Measured | | | | |
| Enderby | 1F04CA | 6250 | 5/28 | 115 | 54.7 | 42.0 | 39.3 |
| Esperon Creek Lower | 2F15CA | 4400 | Not Measured | | | | |
| Esperon Creek Middle | 2F15CA | 4700 | " " | | | | |
| Esperon Creek Upper | 2F13CA | 5400 | " " | | | | |
| Grayback Reservoir | 2F08CA | 5225 | " " | | | | |
| Hamilton Hill | 2G06CA | 4900 | " " | | | | |
| Harts Pass | 20A05A | 6500 | 5/31 | | 41.5s | 40.0 | |
| Isintok Lake | 2F11CA | 6300 | Not Measured | | | | |
| Lost Horse Mountain | 2G04CA | 7000 | " " | | | | |
| McCulloch | 2F03CA | 4200 | " " | | | | |
| Missezula Mtn. | 2G05CA | 5100 | " " | | | | |
| Mission Creek | 2F05CA | 6000 | " " | | | | |
| Monashee Pass | 2E01CA | 4500 | 5/29 | 17 | 7.2 | 0.0 | 2.0 |
| Mount Kobau | 2F12CA | 5960 | Not Measured | | | | |

# Average based on 1961-1980 averages
s SNOTEL data

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SNOW DATA TO JUNE 1, 1984 - APPENDIX 3

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) | |
| NAME | Number | Elevation | | | | Last Year | Average # |
| OKANOGAN RIVER (CONT.) | | | | | | | |
| Mutton Creek No. 1 | 19A01 | 5700 | Not Measured | | | | 11.8 |
| Mutton Creek No.2 SP | 19A11 | 6000 | " " | | | | New |
| Nickel Plate | 2G02CAN | 6200 | " " | | | | |
| Oyama Lake | 2F19CAN | 4400 | " " | | | | |
| Postill Lake | 2F07CAN | 4500 | " " | | | | |
| Rusty Creek | 19A03 | 4000 | " " | | | | |
| Salmon Meadows | 19A02 | 4500 | " " | | | | 5.0 |
| Silver Star Mountain | 2F10CAN | 6050 | 5/27 | 79 | 34.4 | 34.6 | 25.7 |
| Summerland Reservoir | 2F02CAN | 4200 | Not Measured | | | | |
| Sunday Summit | 2G01CAN | 4300 | " " | | | | |
| Trout Creek | 2F01CAN | 4700 | " " | | | | |
| Vaseux Creek | 2F20CAN | 4600 | " " | | | | |
| White Rocks Mountain | 2F09CAN | 6000 | 5/30 | 43 | 20.4 | 10.7 | 10.1 |
| METHOW RIVER | | | | | | | |
| Harts pass | 20A05A | 6500 | 5/31 | | 41.5s | 40.0 | |
| Mutton Creek NO. 1 | 19A01 | 5700 | Not Measured | | | | |
| Mutton Creek No. 2 SP | 19A11 | 6000 | " " | | | | New |
| Rusty Creek | 19A03 | 4000 | " " | | | | |
| Salmon Meadows | 19A02 | 4500 | " " | | | | |
| CHELAN LAKE BASIN | | | | | | | |
| Cloudy Pass + | 20A22 | 6500 | Not Measured | | | | 35.2 |
| Lyman Lake | 20A23 | 5900 | 5/31 | | 74.8sp | 40.5 | |
| Little Meadows + | 20A24a | 5275 | Not Measured | | | 37.6 | 37.6 |
| Mirror Lake | 30A39 | 5600 | 5/30 | | 31.1sp | | New |
| Park Creek Ridge | 20A12 | 4600 | 5/31 | | 24.4sp | 0.0 | |
| Rainy Pass | 20A09 | 4780 | 5/31 | | 29.4sp | 19.4 | |

# Average based on 1961-1980 averages
+ Aerial stadia observation
sp SNOTEL data

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# SNOW DATA TO JUNE 1, 1984 - APPENDIX 4

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Average # |
| **ENTIAT RIVER** | | | | | | | |
| Brief | 20B19 | 1600 | NOT Measured | | | | |
| Entiat Meadows + | 20A33 | 4540 | " | " | | | |
| Entiat River Trail + | 20A34 | 3325 | " | " | | | |
| Fox Camp + | 20A36 | 6510 | " | " | | | |
| Pope Ridge | 20B20 | 3450 | " | " | | | |
| Pugh Ridge + | 20A32 | 6725 | " | " | | | |
| Shady Pass | 20A37 | 6200 | 5/29 | 48 | 21.6 | 8.8 | 17.1 |
| Snow Brushy + | 20A35 | 3910 | Not Measured | | | | |
| Tommy Creek + | 20B21 | 4900 | " | " | | | |
| **WENATCHEE RIVER** | | | | | | | |
| Berne Mill Creek | 21B23 | 3170 | Not Measured | | | | |
| Berne Mill Creek SP | 21B41 | 3240 | " | " | | | |
| Blewett Pass No. 2 | 20B02 | 4270 | " | " | | | |
| Chiwaukum G. S. | 20B16 | 1810 | " | " | | | |
| Lake Wenatchee | 20B05 | 1970 | Watershed Logged Discontinued | | | | |
| Lyman Lake | 20A23 | 5900 | 5/31 | | 74.8sp | 40.5 | |
| Merritt | 20B18 | 2140 | Not Measured | | | | |
| Stevens Pass | 21B01 | 4070 | 5/30 | 74 | 37.3 | 11.4 | 35.8 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 5/30 | 27 | 12.3 | 0.0 | 14.2 |
| **COLOCKUM CREEK** | | | | | | | |
| Trough #2(SP) | 20B25 | 5310 | 5/25 | | 0.0sp | 0.0 | |

+ Aerial stadia observation
# Average based on 1961-1980 averages
sp SNOTEL data

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# SNOW DATA TO JUNE 1 , 1984 - APPENDIX 5

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| SQUILCHUCK CREEK | | | | | | | |
| Beehive Springs | 20B03 | 4400 | Not Measured | | | | |
| Scout-a-Vista | 20B04 | 3400 | " | " | | | |
| STEMILT CREEK | | | | | | | |
| Stimelt Slide | 20B06 | 5000 | Not Measured | | | | |
| Upper Wheeler | 20B07 | 4400 | " | " | | | |
| YAKIMA RIVER | | | | | | | |
| Ahtanum R.S. | 21C11 | 3100 | Not Measured | | | | |
| Big Boulder Creek | 21B09 | 3200 | " | " | | | |
| Blewet Pass No. 2 | 20B02 | 4270 | " | " | | | |
| Bumping Lake Old | 21C08 | 3450 | " | " | | | |
| Bumping Lake New | 21C36 | 3400 | " | " | | | |
| Cayuse Pass | 21C06 | 5300 | " | " | | | |
| Colockum Pass | 20B09 | 5370 | " | " | | | |
| Corral Pass | 21B13 | 6000 | " | " | | | |
| Fish Lake | 21B04 | 3371 | " | " | | | |
| Green Lake | 21C10 | 6000 | " | " | | | |
| Grouse Camp | 20B11 | 5385 | " | " | | | |
| Lake Cle Elum | 21B14 | 2200 | " | | | | |
| Morse Lake | 21C17 | 5400 | 5/31 | | 46.7sp | | |
| Olallie Meadows | 21B02 | 3625 | 5/31 | | 45.2sp | | |
| Stampede Pass | 21B10 | 3860 | 5/31 | 68 | 37.3 | 0.0 | 26.9 |
| Tunnel Avenue | 21B08 | 2450 | Not Measured | | | | |
| White Pass E. Side | 21C28 | 4500 | " | " | | | |

# Average based on 1961-1980 averages
sp SNOTEL Reading

WSFB-X4-L

# SNOW DATA TO JUNE 1, 1984 - APPENDIX 6

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Ahtanum R. S. | 21C11 | 3100 | Not Measured | | | | |
| Green Lake | 21C10 | 6000 | " | " | | | |
| LOWER COLUMBIA DRAINAGE | | | | | | | |
| MILL CREEK | | | | | | | |
| High Ridge SP | 18D19 | 4890 | 5/31 | | 0.0sp | 0.0 | |
| Touchet # 2 SP | 17C55 | 5530 | 5/31 | | 9.9sp | 0.2 | |
| COWLITZ RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | Not Measured | | | | |
| White Pass E. Side | 21C28 | 4500 | " | " | | | |
| PUGET SOUND DRAINAGE | | | | | | | |
| WHITE RIVER | | | | | | | |
| Cayuse Pass | 21C06 | 5300 | Not Measured | | | | |
| Corral Pass | 21B13 | 6000 | " | " | | | |
| Morse Lake | 21C17 | 5400 | " | " | | | |
| GREEN RIVER | | | | | | | |
| Airstrip | 21B24 | 1800 | 5/31 | 0 | 0.0 | | |
| Charley Creek | 21B25 | 1200 | 5/31 | 0 | 0.0 | | |
| Cougar Mountain | 21B42 | 3200 | 5/30 | | 3.0sp | 0.0 | |
| Grass Mtn. No. 2 | 21B27 | 2900 | 5/31 | 0 | 0.0 | | |
| Grass Mtn. No. 3 | 21B28 | 2100 | 5/31 | 0 | 0.0 | | |
| Lester Creek | 21B29 | 3100 | 5/31 | 2 | 1.6 | | |
| Lynn Lake | 21B50 | 4000 | 5/31 | 8 | 3.5 | 0.0 | 3.2 |
| Sawmill Ridge | 21B31 | 4700 | 5/31 | 57 | 25.6 | | |
| Stampede Pass | 21B10 | 3860 | 5/31 | 68 | 37.3 | 26.4 | 26.9 |
| Twin Camp | 21C30 | 4100 | 5/31 | 22 | 10.4 | | |

# Average based on 1961-1980 averages
sp SNOTEL Reading

WSFB-X4-L

# SNOW DATA TO JUNE 1, 1984 - APPENDIX 7

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows | 21B02 | 3625 | 5/31 | | 45.2sp | | |
| SKYKOMISH RIVER | | | | | | | |
| Stevens Pass | 21B01 | 4070 | 5/30 | 74 | 37.3 | 11.4 | 35.8 |
| Stevens Pass Sand Shed | 21B45 | 3700 | 5/30 | 27 | 12.3 | 0.0 | 14.2 |
| SKAGIT RIVER | | | | | | | |
| Beaver Creek Trail | 21A04 | 2200 | Not Measured | | | | |
| Beaver Pass | 21A01 | 3680 | " " | | | | |
| Brown Top Ridge | 21A28 | 6000 | " " | | | | |
| Devils Park | 20A04 | 5900 | " " | | | | |
| Freezeout Creek Trail | 20A01 | 3500 | " " | | | | |
| Freezeout Meadows New | 20A38 | 5000 | " " | | | | |
| Granite Creek | 21A29 | 3500 | " " | | | | |
| Harts Pass | 20A05A | 6500 | 5/31 | | 41.5sp | 40.0 | |
| Klesilkwa | 3D03ACA | 3700 | Not Measured | | | | |
| Lightning Lake | 3D02CAN | 4000 | " " | | | | |
| Lyman Lake | 20A23 | 5900 | 5/31 | | 74.8sp | 40.5 | |
| Meadow Cabins | 20A08 | 1900 | Not Measured | | | | |
| New Hozomeen Lake | 21A30 | 2800 | " " | | | | |
| Rainy Pass | 20A09 | 4780 | 5/31 | | 29.4sp | 19.4 | |
| Thunder Basin | 20A07 | 4200 | Not Measured | | | | |

# Average based on 1961-1980 averages
sp SNOTEL data

WSFB-X4-L

SNOW DATA TO JUNE 1, 1984 - APPENDIX 8

| SNOW | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| DRAINAGE BASIN and/or SNOW COURSE | | | | | | Water Content (inches) | |
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Last Year | Average # |
| BAKER RIVER | | | | | | | |
| Dock Butte + | 20A11A | 3800 | Not Measured | | | | |
| Easy Pass + | 21A07A | 5200 | " | " | | | |
| Jasper Pass + | 21A06A | 5400 | " | " | | | |
| Martin Lake | 21A09A | 3600 | " | " | | | |
| Mt. Blum + | 21A18A | 5800 | " | " | | | |
| Rocky Creek | 21A12A | 2100 | " | " | | | |
| Schreibers Meadow | 21A10A | 3400 | " | " | | | |
| S.F. Thunder Creek + | 21A14A | 2200 | " | " | | | |
| Watson Lake | 21A08A | 4500 | " | " | | | |
| OLYMPIC PENINSULA DRAINAGE | | | | | | | |
| DUNGENESS RIVER | | | | | | | |
| Deer Park | 23B04 | 5200 | Not Measured | | | | |
| MORSE CREEK | | | | | | | |
| Cox Valley | 23B14 | 4500 | Not Measured | | | | |
| ELWHA RIVER | | | | | | | |
| Hurricane | 23B03 | 4500 | Not Measured | | | | |
| WYNOOCHEE RIVER | | | | | | | |
| Carrol Pass | 23B15 | | 50 | | 23.9 | | |

+ Aerial stadia observation
# Average based on 1961-1980 average

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# SNOTEL READINGS, JUNE 1, 1984 - APPENDIX 1

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Average # |
| PEND OREILLE RIVER | | | | | | | |
| Bunchgrass Meadow | 17A01 | 5000 | 5/15 | | 27.5 | | 36.3 |
| | | | 5/31 | | 20.7 | | 12.5 |
| OKANOGAN & METHOW RIVERS | | | | | | | |
| Harts Pass | 20A05 | 6500 | 5/15 | | 44.0 | | 49.1 |
| | | | 5/31 | | 41.5 | | 31.4 |
| Salmon Meadow | 19A02 | 4500 | 5/15 | | 5.9 | | 4.0 |
| | | | 5/23 | | 0.0 | | 17.1 |
| CHELAN LAKE BASIN | | | | | | | |
| Lyman Lake | 20A23 | 5900 | 5/15 | | 72.6 | | 59.1 |
| | | | 5/31 | | 74.8 | | 35.5 |
| Mirror Lake | 20A39 | 5600 | 5/14 | | 32.8 | | |
| | | | 5/30 | | 31.1 | | |
| Park Creek Ridge | 20A12 | 4600 | 5/15 | | 32.8 | | |
| | | | 5/31 | | 24.4 | | |
| Rainy Pass | 20A09 | 4780 | 5/15 | | 34.0 | | 35.6 |
| | | | 5/25 | | 32.7 | | 20.2 |
| ENTIAT RIVER | | | | | | | |
| Pope Ridge | 20B20 | 3450 | 5/15 | | 0.0 | | 0.0 |
| | | | 5/25 | | 0.0 | | 0.0 |
| WENATCHEE RIVER | | | | | | | |
| Blewett Pass | 20B02 | 4270 | 5/15 | | 1.0 | | |
| | | | 5/31 | | 1.5 | | |
| Lyman Lake | 20A23 | 5900 | 5/15 | | 72.6 | | 59.1 |
| | | | 5/31 | | 74.8 | | 35.5 |
| Stevens Pass | 21B01 | 4070 | 5/15 | | 32.7 | | 9.2 |
| | GT | | 5/30 | | 41.0 | | 21.4 |
| | | | 5/31 | | 22.7 | | 0.0 |
| Trough # 2 | 20B25 | 5300 | 5/15 | | 0.0 | | 11.0 |
| | | | 5/31 | | 0.0 | | 0.0 |

GT = Ground Truth measurement at SNOTEL site

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# SNOTEL READINGS, JUNE 1, 1984 - APPENDIX 2

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| COLOCKUM CREEK | | | | | | | |
| Trough # 2 | 20B25 | 5300 | 5/15 | | 0.0 | 11.0 | |
| | | | 5/30 | | 0.0 | 0.0 | |
| STEMILT CREEK | | | | | | | |
| Upper Wheeler | 20B07 | 4400 | 5/15 | | 2.4 | 5.8 | |
| | | | 5/31 | | 0.0 | 1.3 | |
| YAKIMA RIVER | | | | | | | |
| Big Boulder Creek | 21B09 | 3200 | 5/15 | | 11.2 | 0.2 | |
| | | | 5/31 | | 10.6 | 0.0 | |
| Bumping Ridge | 21C38 | 4600 | 5/15 | | 28.2 | | |
| | | | 5/30 | | 22.4 | | |
| Corral Pass | 21B13 | 6000 | 5/15 | | 7.2 | 10.1 | |
| | | | 5/30 | | 2.7 | 0.3 | |
| Fish Lake | 21B04 | 3371 | 5/15 | | 32.2 | | |
| | | | 5/31 | | 16.7 | | |
| Green Lake | 21C10 | 6000 | 5/15 | | 20.3 | 32.2 | |
| | | | 5/31 | | 11.9 | 11.8 | |
| Grouse Camp | 20B11 | 5385 | 5/14 | | 11.1. | 23.2 | |
| | | | 5/30 | | 0.0 | | |
| Morse Lake | 21C17 | 5400 | 5/15 | | 23.2 | 80.5 | |
| | | | 5/31 | | 46.7 | 14.9 | |
| White Pass E. Side | 21C28 | 4500 | 5/15 | | 23.1 | 16.6 | |
| | | | 5/29 | | 18.0 | 0.3 | |

GT = Ground Truth measurement at SNOTEL site

WSFB-X4-L

# SNOTEL READINGS, JUNE 1, 1984 - APPENDIX 3

**SNOW**

| ORAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Average # |
| AHTANUM CREEK | | | | | | | |
| Green Lake | 21C10 | 6000 | 5/15 | | 20.3 | | 32.2 |
| | | | 5/31 | | 11.9 | | 11.8 |
| TOUCHET RIVER | | | | | | | |
| Touchet # 2 | 17C5 | 5530 | 5/16 | | 26.4 | | 28.8 |
| | | | 5/31 | | 9.9 | | 0.2 |
| LEWIS RIVER | | | | | | | |
| June Lake | 22C09 | 3200 | 5/15 | | | | |
| | | | 5/31 | | | | |
| Lone Pine Shelter | 21C26 | 3800 | 5/15 | | 39.2 | | 39.6 |
| | | | 5/26 | | 36.1 | | 20.4 |
| Plains of Abraham | 22C01 | 4400 | 5/15 | | 99.6 | | |
| | | | 5/31 | | 73.1 | | |
| Sheep Canyon | 22C10 | 4050 | 5/15 | | 44.7 | | |
| | | | 5/29 | | 36.9 | | |
| Spencer Meadow | 21C20 | 3400 | 5/15 | | | | |
| | | | 5/01 | | | | |
| Surprise Lake | 21C13 | 4250 | 5/15 | | 59.6 | | 44.9 |
| | | | 5/31 | | 47.7 | | 16.7 |
| COWLITZ RIVER | | | | | | | |
| Pigtail Peak | 21C33 | 5900 | 5/15 | | 54.5 | | 46.6 |
| | | | 5/31 | | 51.3 | | 26.3 |
| Potato Hill | 21C14 | 4500 | 5/15 | | 16.4 | | |
| | | | 5/31 | | 4.8 | | |
| Sheep Canyon | 22C10 | 4050 | 5/15 | | 44.7 | | |
| | | | 5/29 | | 36.9 | | |
| Strawberry Landing | 22C08 | 3280 | 5/15 | | | | 36.3 |
| | | | 5/01 | | | | |
| Steppes PC | 22C11 | | 5/15 | | | | |
| | | | 5/30 | | | | |
| Spirit PC | 22C12 | | 5/15 | | | | |
| | | | 5/30 | | | | |

GT = Ground Truth measurement at SNOTEL sites

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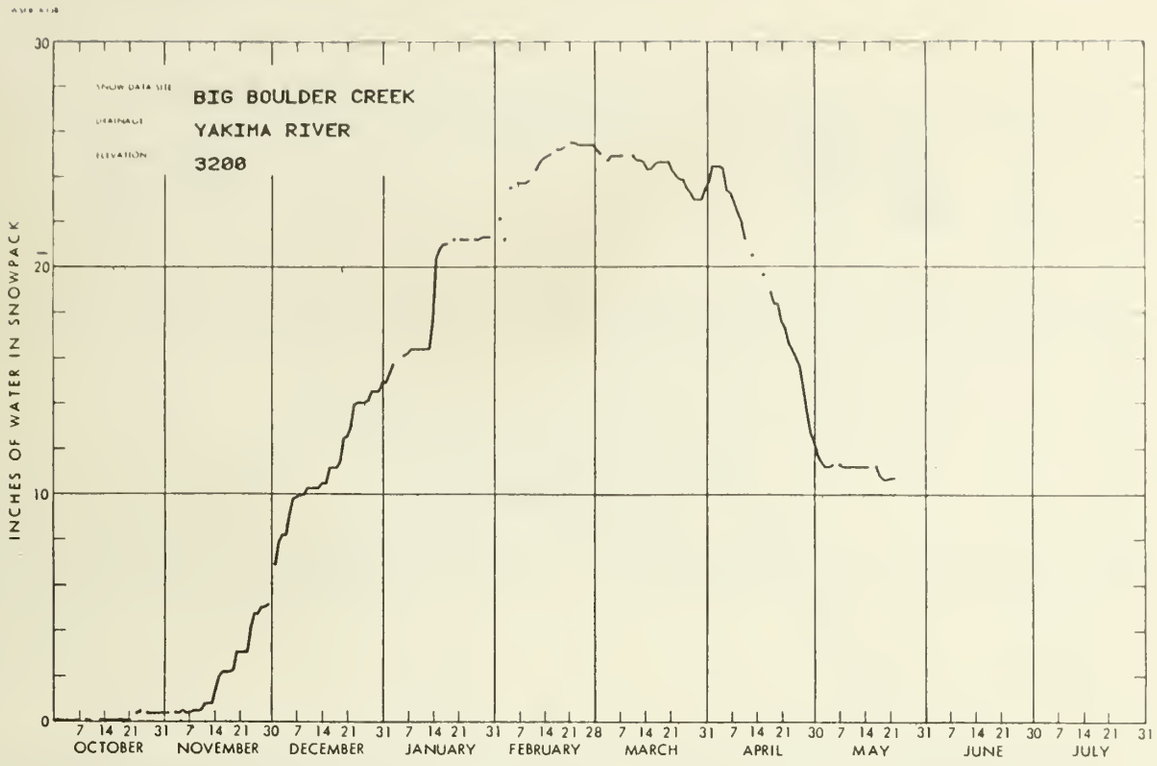
# SNOTEL READINGS, JUNE 1,1984 - APPENDIX 4

**SNOW**

| DRAINAGE BASIN and/or SNOW COURSE | | | THIS YEAR | | | PAST RECORD | |
|---|---|---|---|---|---|---|---|
| NAME | Number | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (inches) Last Year | Water Content (inches) Average # |
| NISQUALLY RIVER | | | | | | | |
| Paradise Park | 21C35 | 5500 | 5/14 | | 22.1 | | |
| | | | 5/29 | | 20.8 | | |
| WHITE RIVER | | | | | | | |
| Corral Pass | 21B13 | 6000 | 5/15 | | 7.2 | 10.1 | |
| | | | 5/30 | | 2.7 | 0.3 | |
| Morse Lake | 21C17 | 5400 | 5/15 | | 23.2 | 80.5 | |
| | | | 5/31 | | 46.7 | 14.9 | |
| GREEN RIVER | | | | | | | |
| Cougar Mountain | 21B42 | 3200 | 5/14 | | 13.0 | 0.0 | |
| | | | 5/30 | | 3.0 | 0.0 | |
| Stampede Pass | 21B10 | 3960 | 5/15 | | 43.9 | 24.3 | |
| | GT | | 5/31 | | 68 | 37.3 | |
| | | | 5/31 | | 36.0 | 0.4 | |
| SNOQUALMIE RIVER | | | | | | | |
| Olallie Meadows East | 21B55 | 3960 | 5/15 | | 56.5 | 41.3 | |
| | | | 5/31 | | 45.2 | 17.1 | |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BIG BOULDER CREEK
DRAINAGE
YAKIMA RIVER
ELEVATION
3200
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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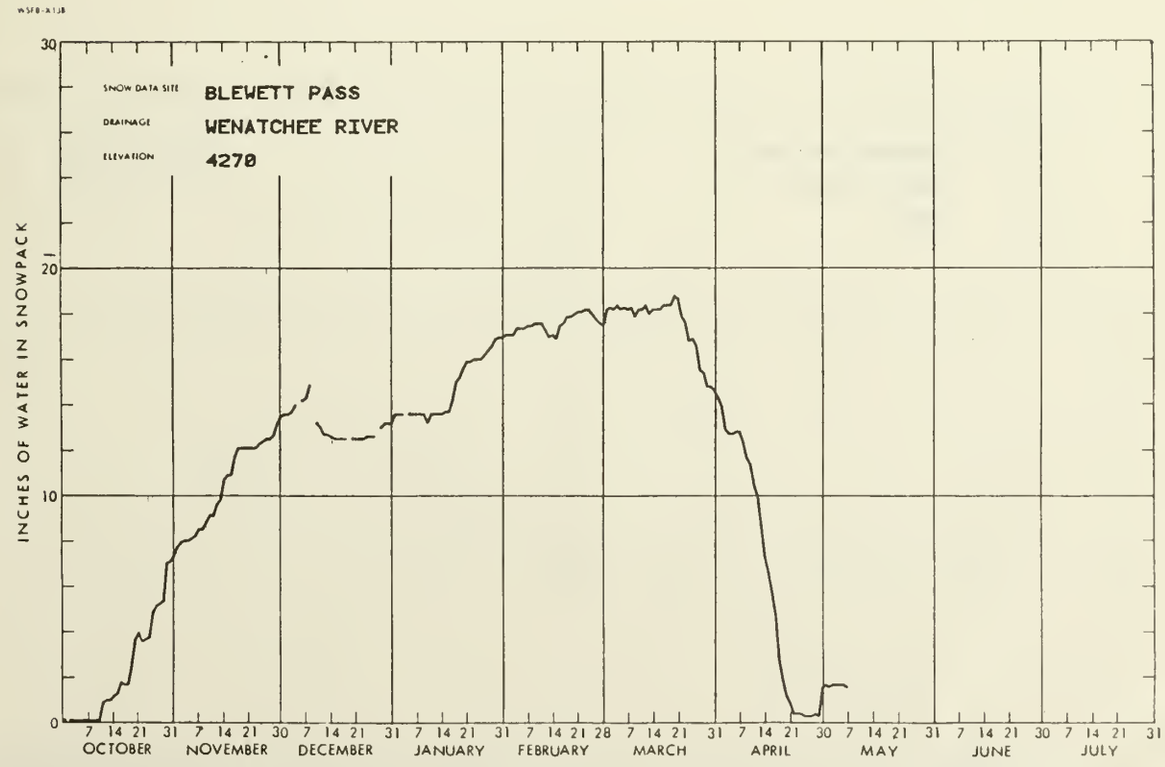
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY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BLEWETT PASS
DRAINAGE
WENATCHEE RIVER
ELEVATION
4270
INCHES OF WATER IN SNOWPACK
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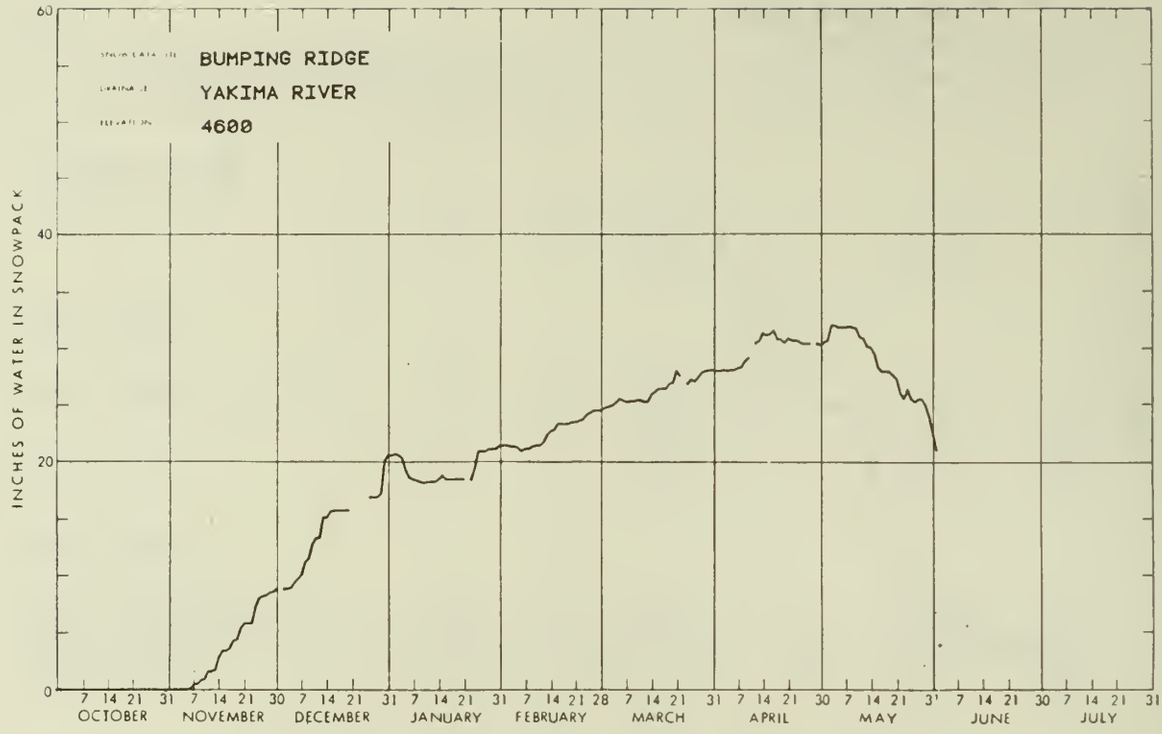
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


BUMPING RIDGE
YAKIMA RIVER
4600
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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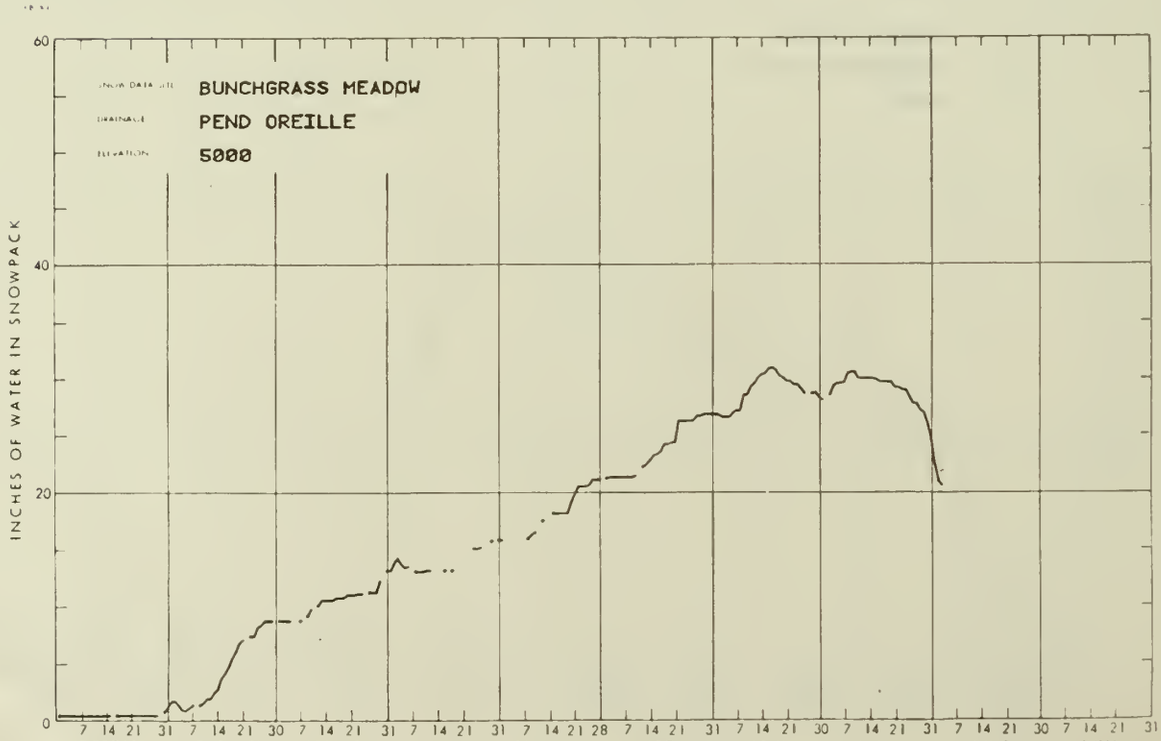
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


BUNCHGRASS MEADOW
PEND OREILLE
5000
INCHES OF WATER IN SNOWPACK
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20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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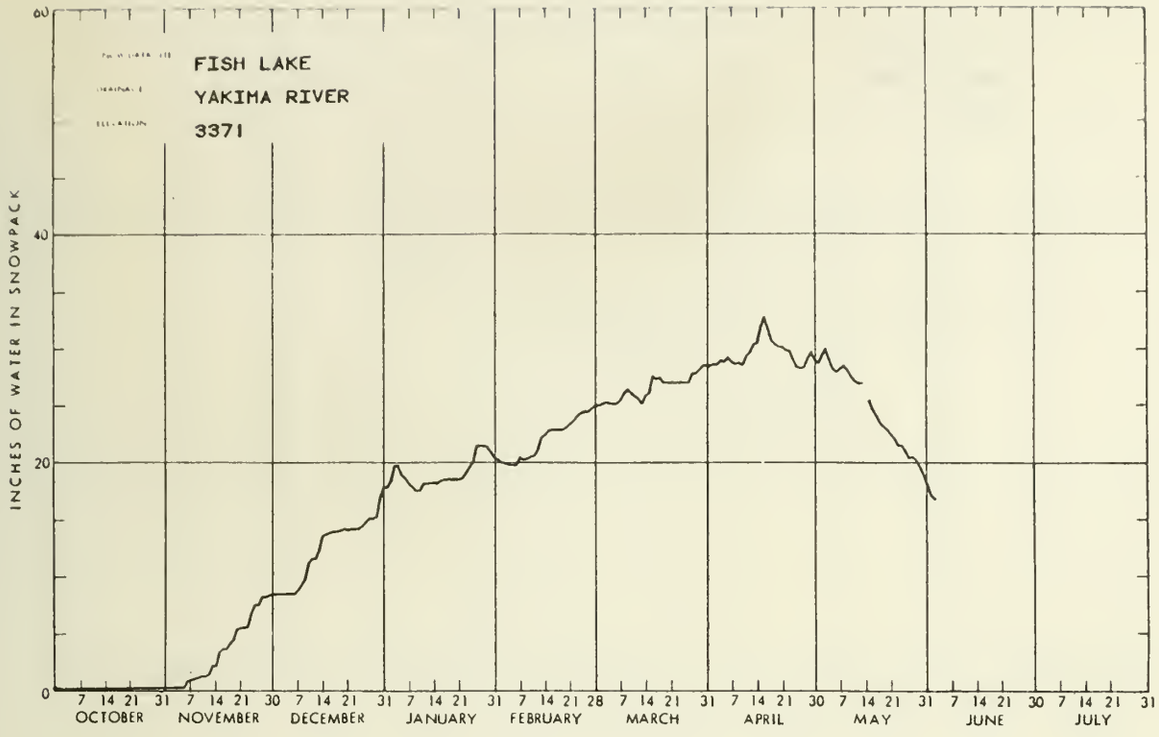
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


FISH LAKE
YAKIMA RIVER
3371
INCHES OF WATER IN SNOWPACK
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20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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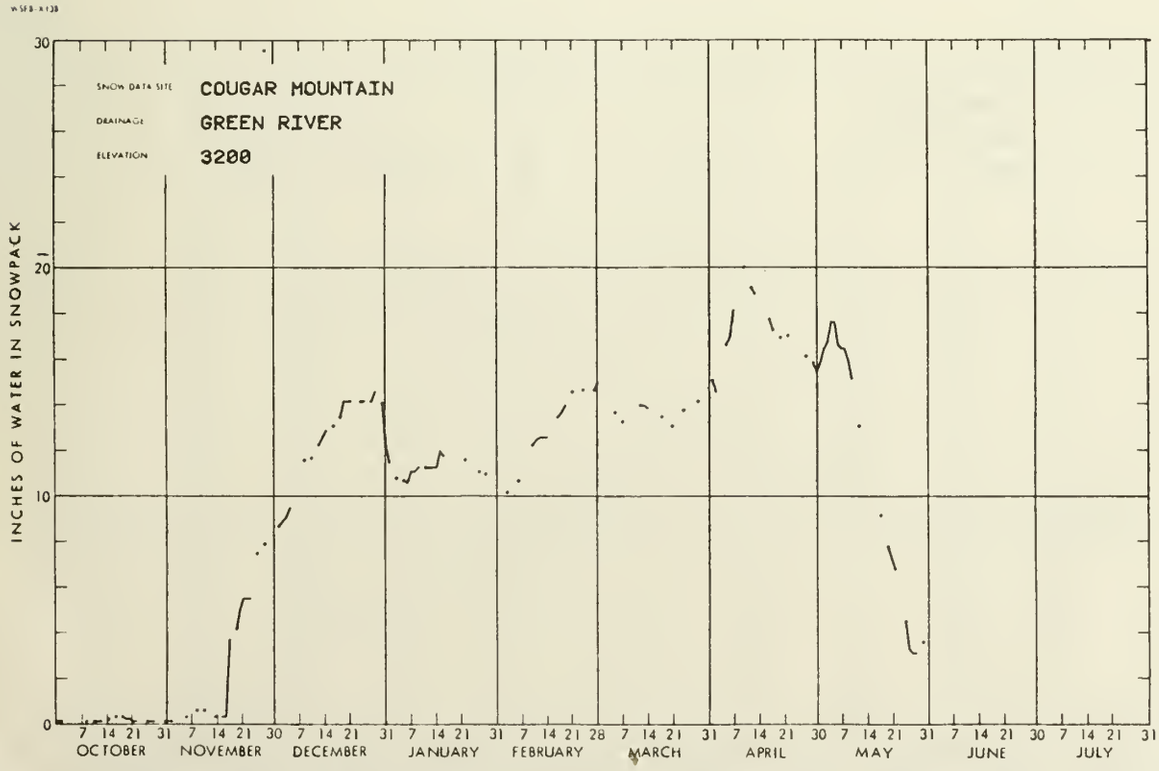
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY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COUGAR MOUNTAIN
DRAINAGE
GREEN RIVER
ELEVATION
3200
INCHES OF WATER IN SNOWPACK
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20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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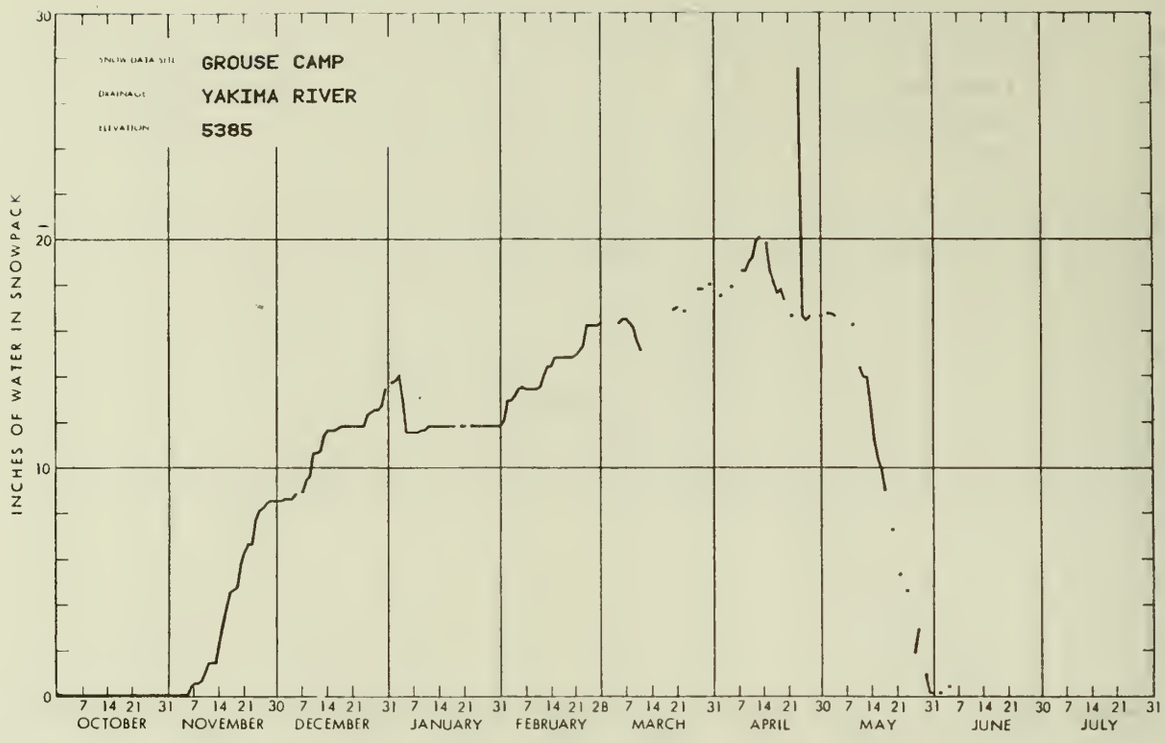
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY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GROUSE CAMP
DRAINAGE
YAKIMA RIVER
ELEVATION
5385
INCHES OF WATER IN SNOWPACK
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10
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7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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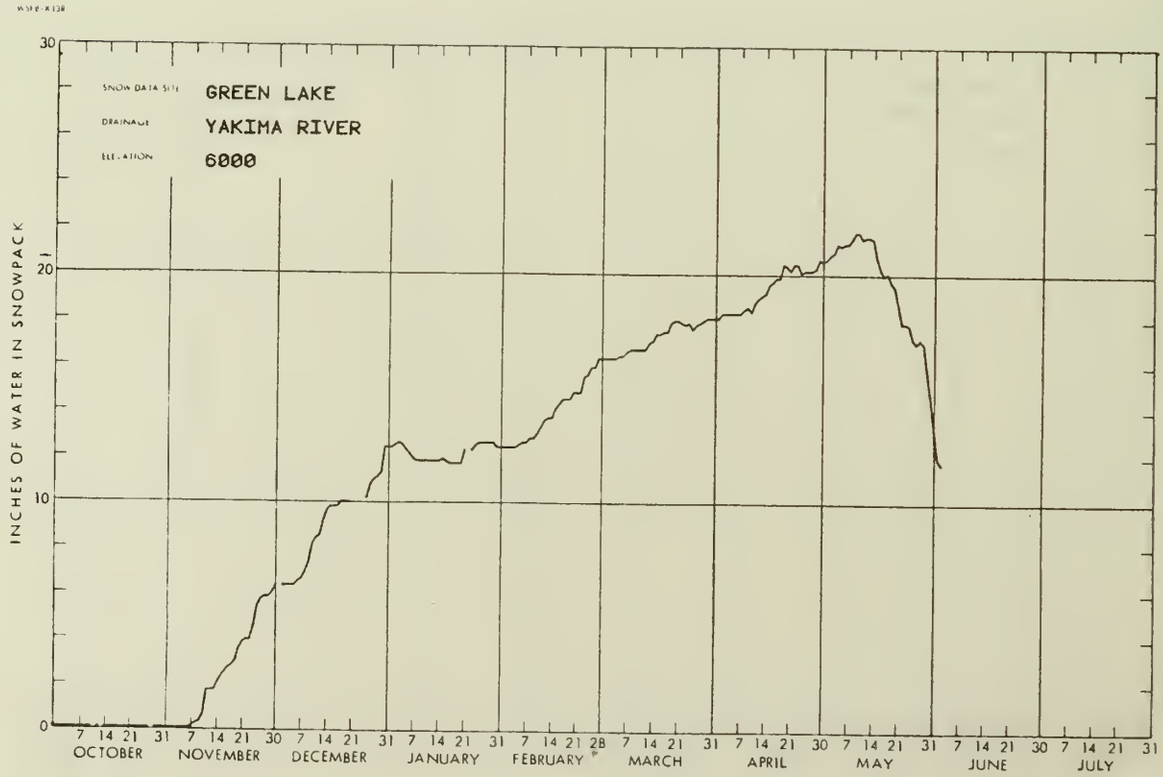
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
GREEN LAKE
DRAINAGE
YAKIMA RIVER
ELEVATION
6000
INCHES OF WATER IN SNOWPACK
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20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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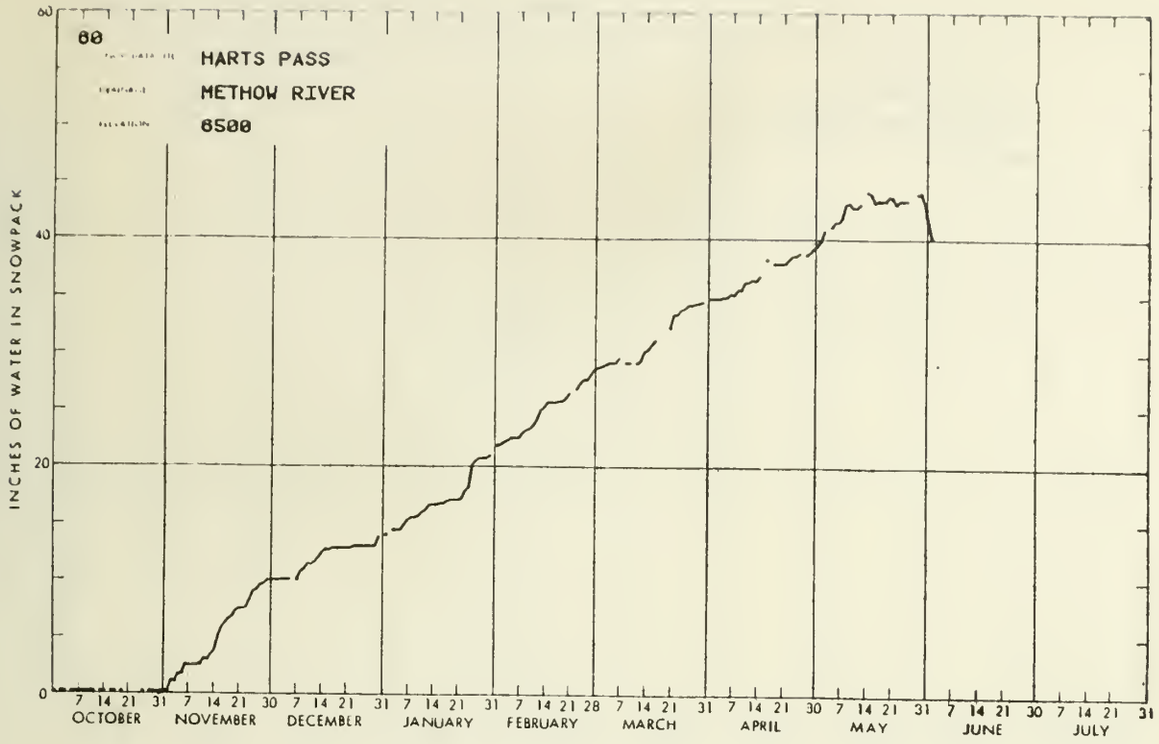
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


60
HARTS PASS
METHOW RIVER
6500
INCHES OF WATER IN SNOWPACK
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20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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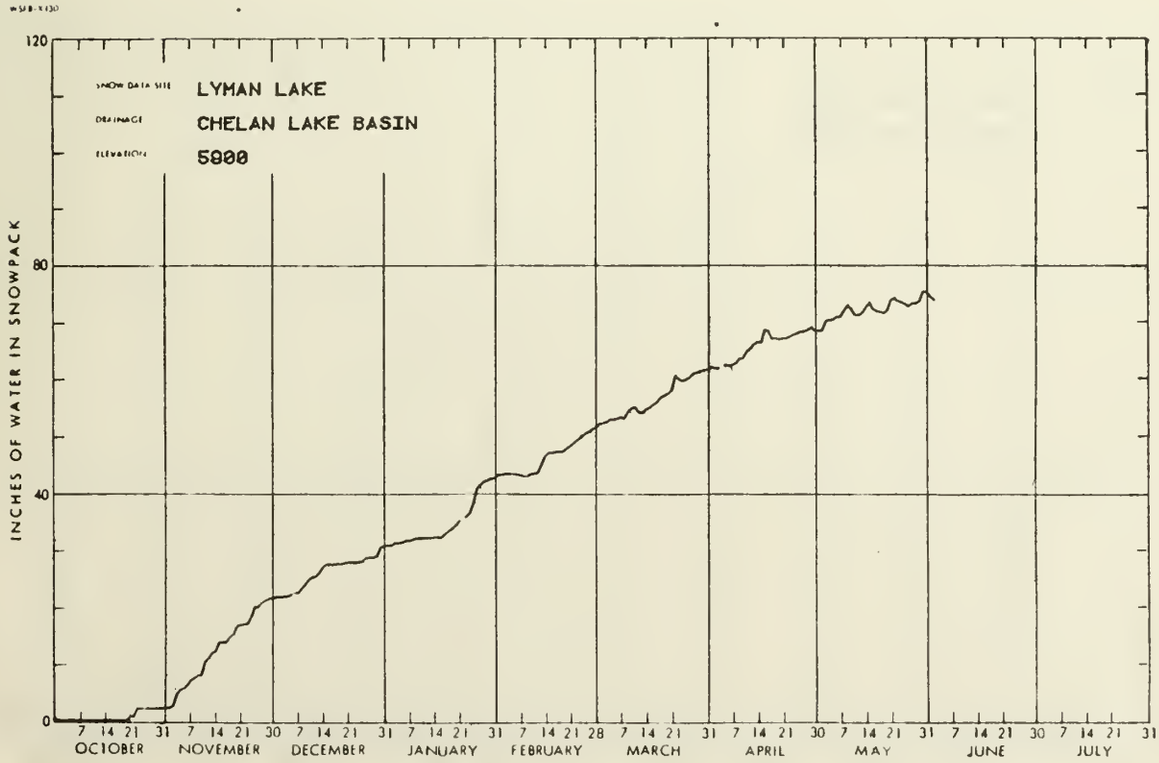
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


LYMAN LAKE
CHELAN LAKE BASIN
5900
INCHES OF WATER IN SNOWPACK
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40
80
120
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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JANUARY
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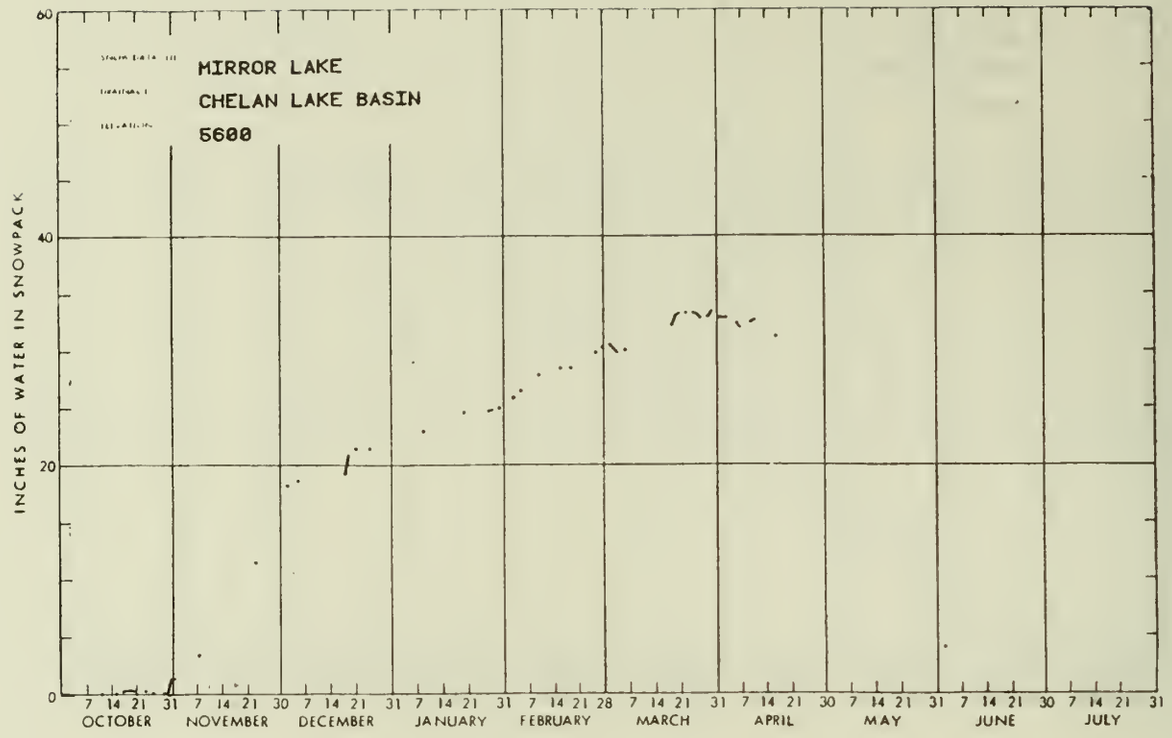
MARCH
APRIL
MAY
JUNE
JULY


MIRROR LAKE
CHELAN LAKE BASIN
5600
INCHES OF WATER IN SNOWPACK
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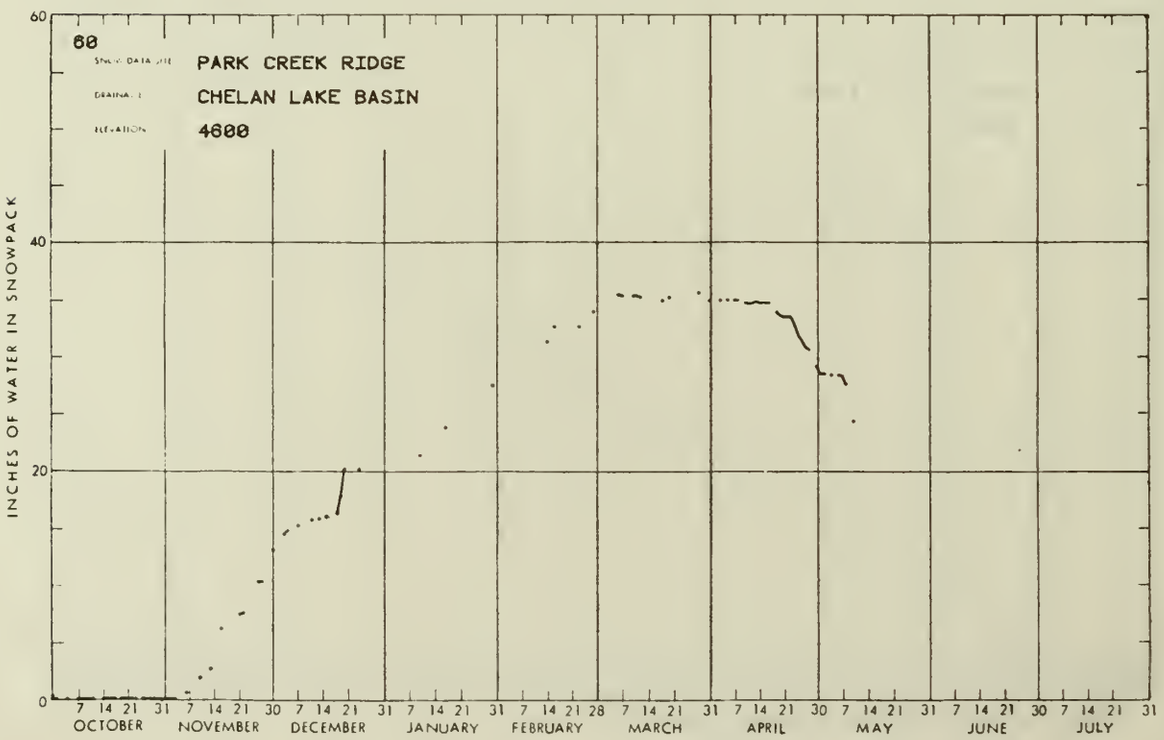
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY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PARK CREEK RIDGE
CHELAN LAKE BASIN
4600
INCHES OF WATER IN SNOWPACK
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40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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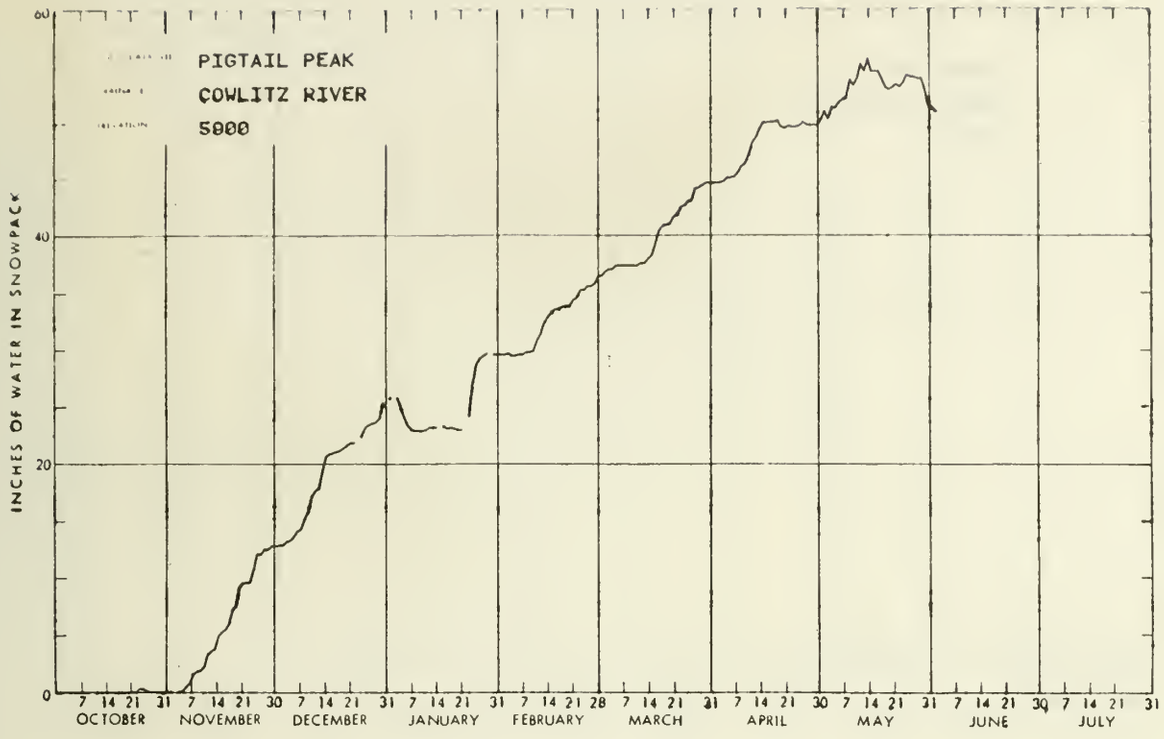
PIGTAIL PEAK
COWLITZ RIVER
5000
INCHES OF WATER IN SNOWPACK
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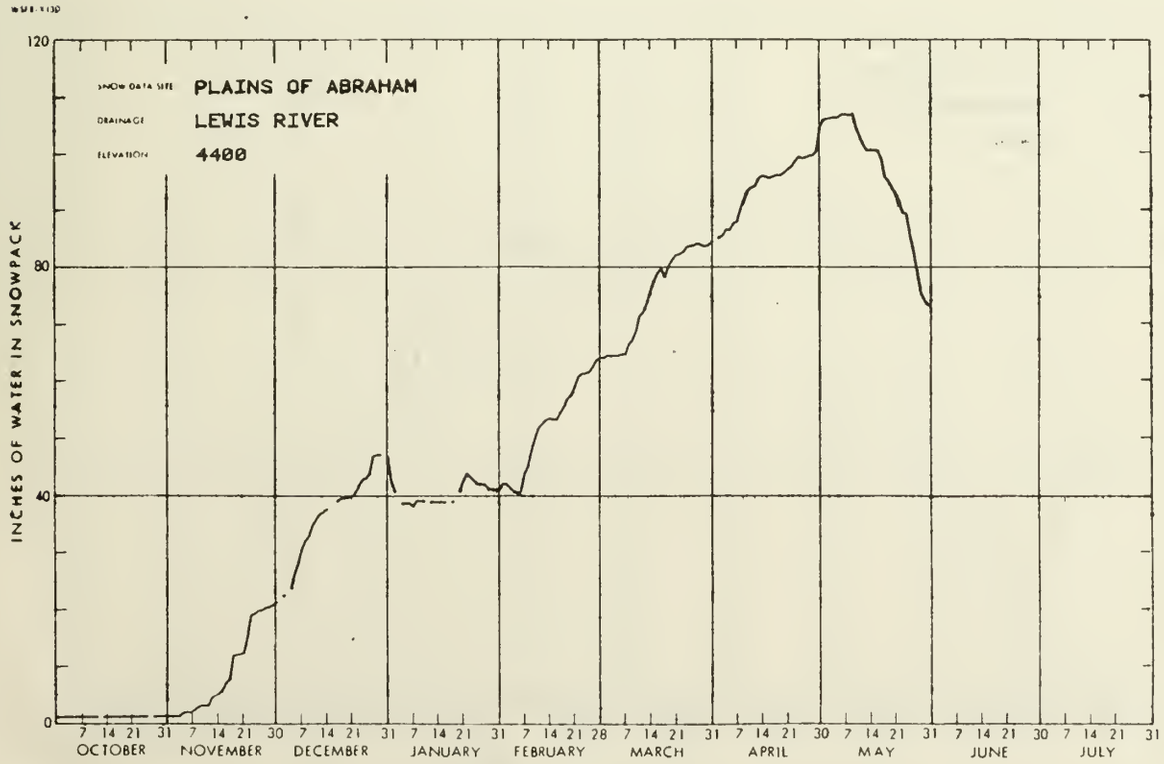
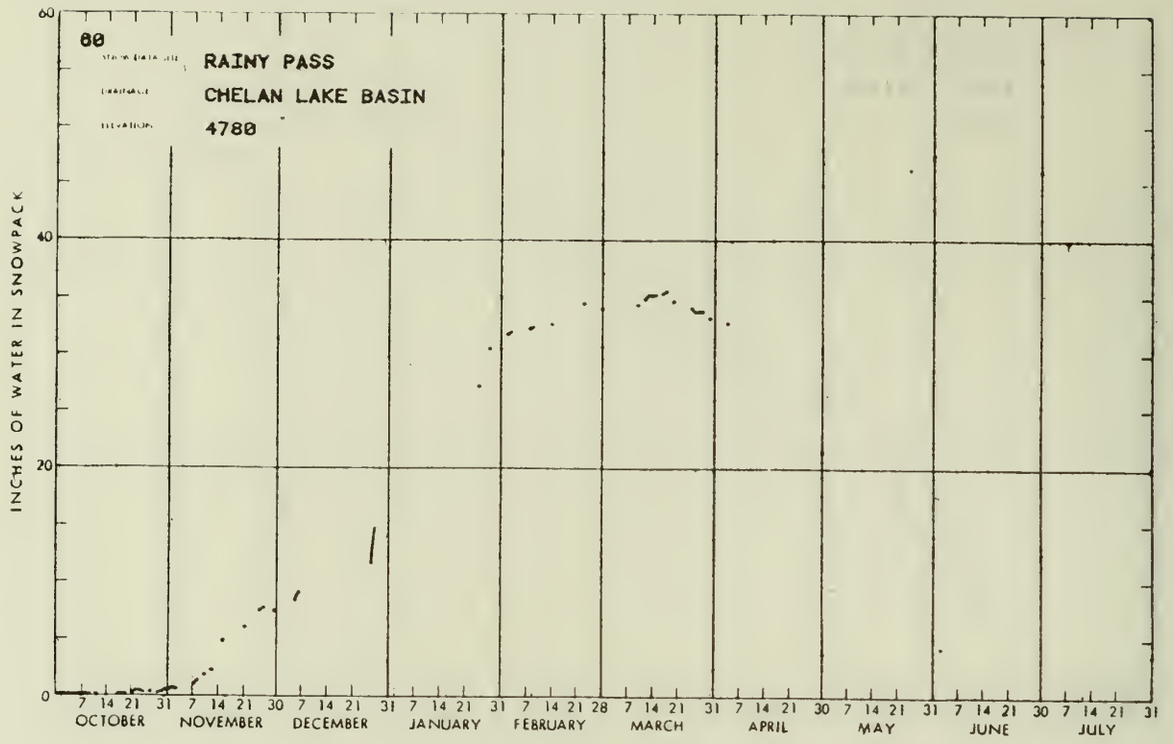
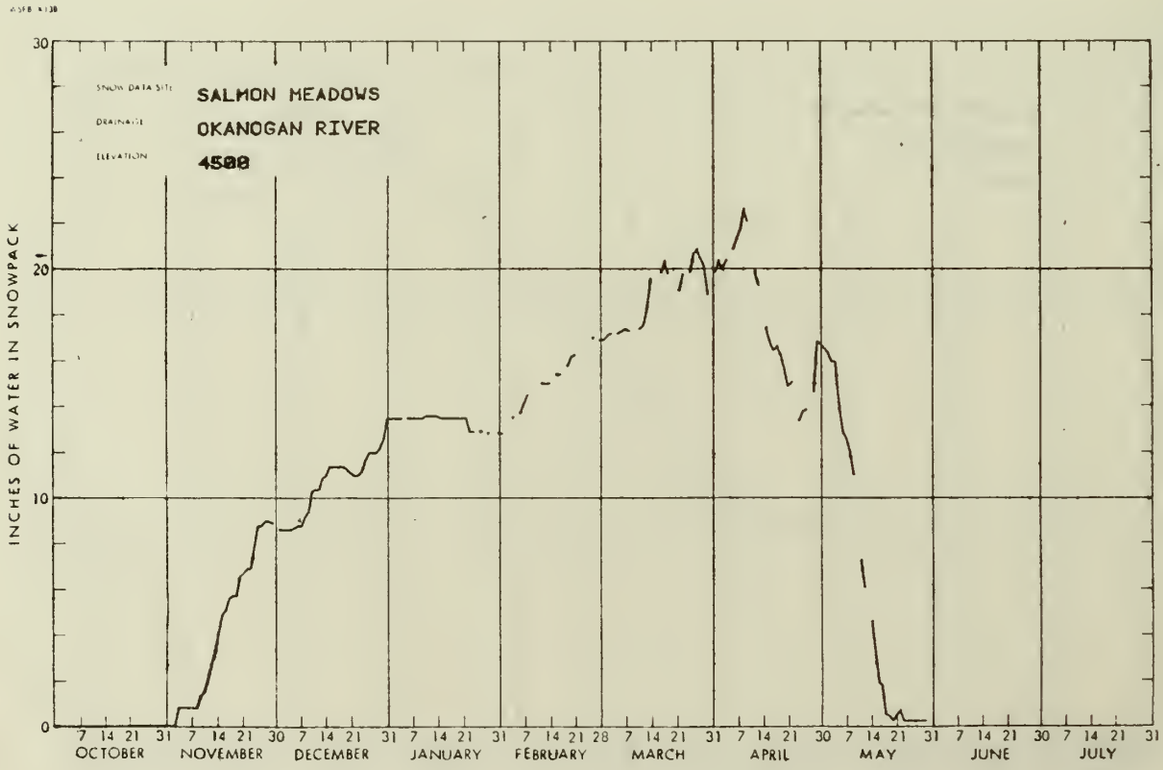
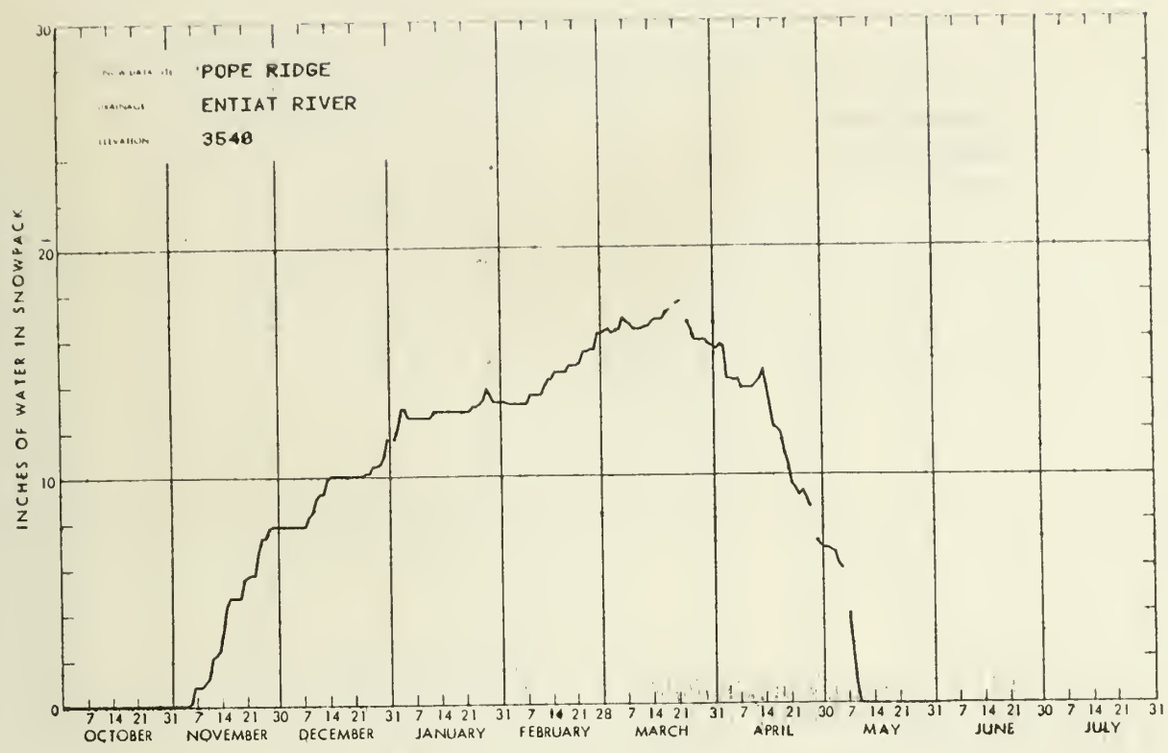
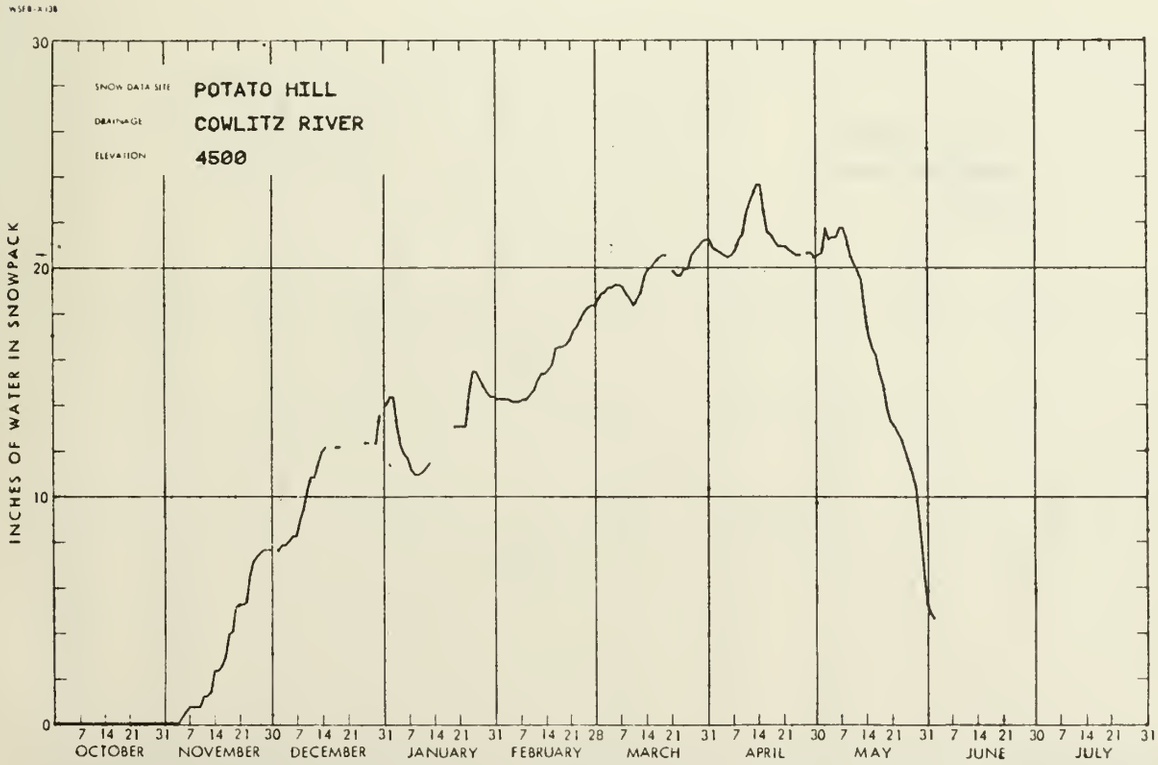
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


PLAINS OF ABRAHAM
LEWIS RIVER
4400
INCHES OF WATER IN SNOWPACK
0
40
80
120
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


60
40
20
0
INCHES OF WATER IN SNOWPACK
80
RAINY PASS
CHELAN LAKE BASIN
4780
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


30
20
10
0
INCHES OF WATER IN SNOWPACK
SALMON MEADOWS
OKANOGAN RIVER
4500
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY


POPE RIDGE
ENTIAT RIVER
3540
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY


SNOW DATA SITE
POTATO HILL
COWLITZ RIVER
4500
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
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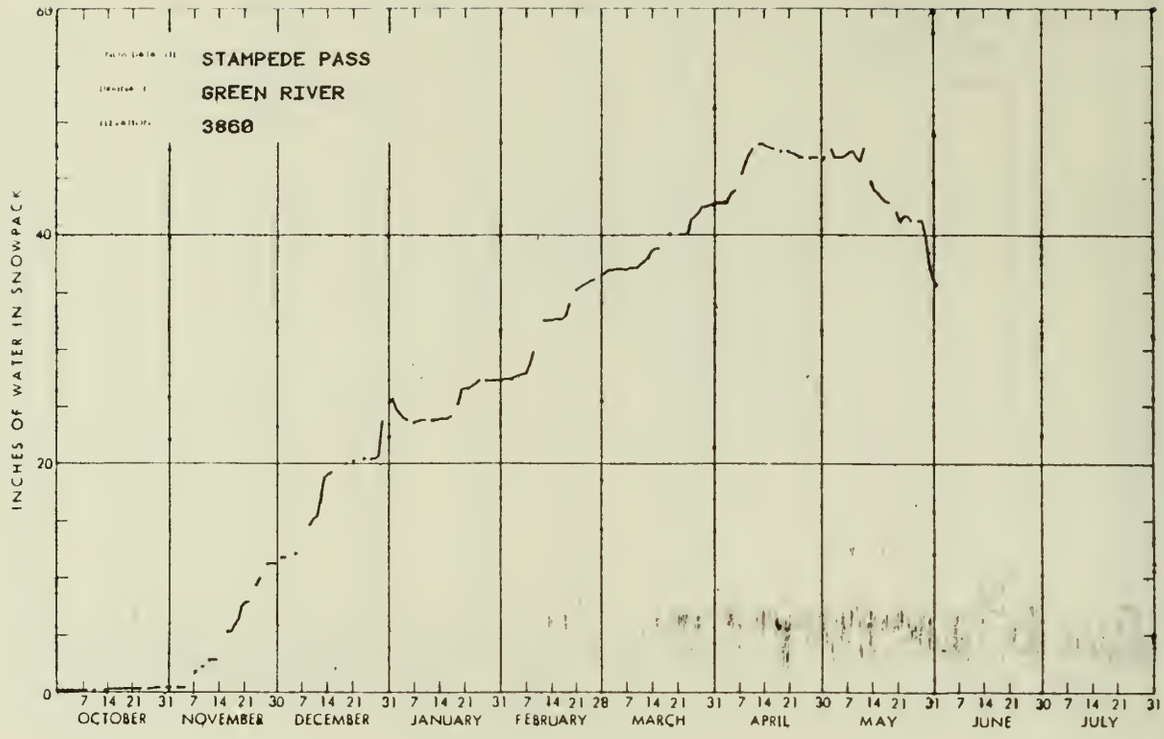
JUNE
JULY


STAMPEDE PASS
GREEN RIVER
3860
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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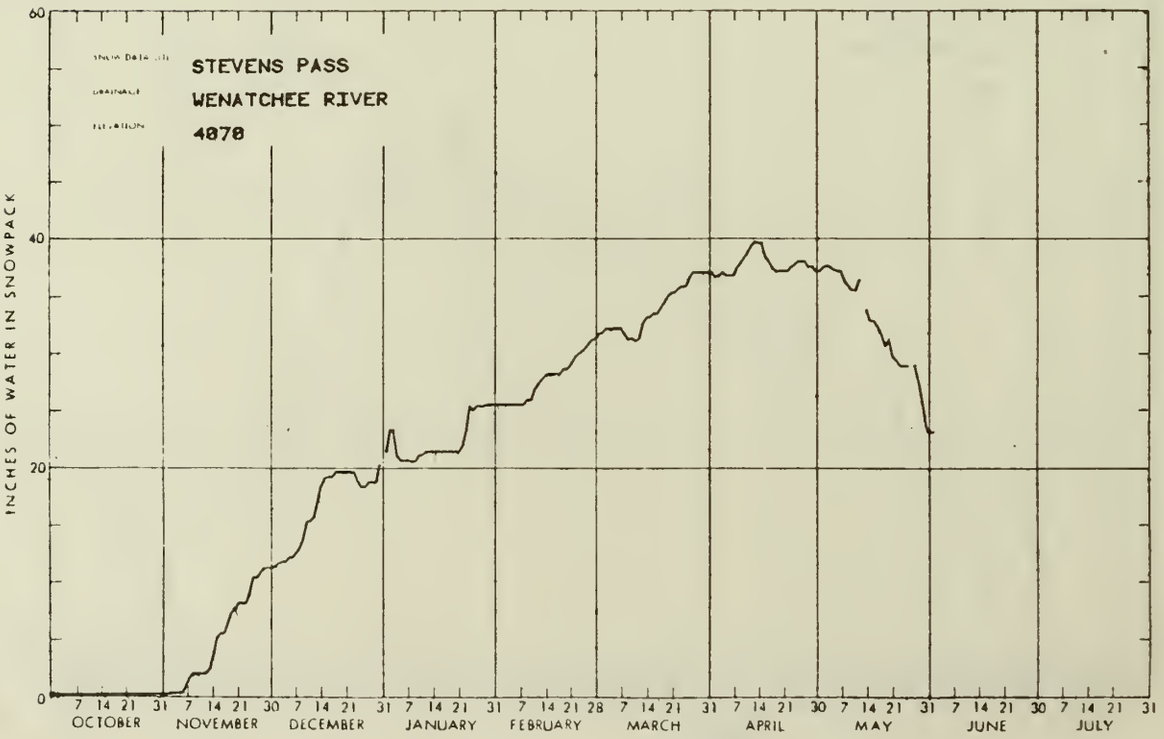
STEVENS PASS
WENATCHEE RIVER
4070
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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MARCH
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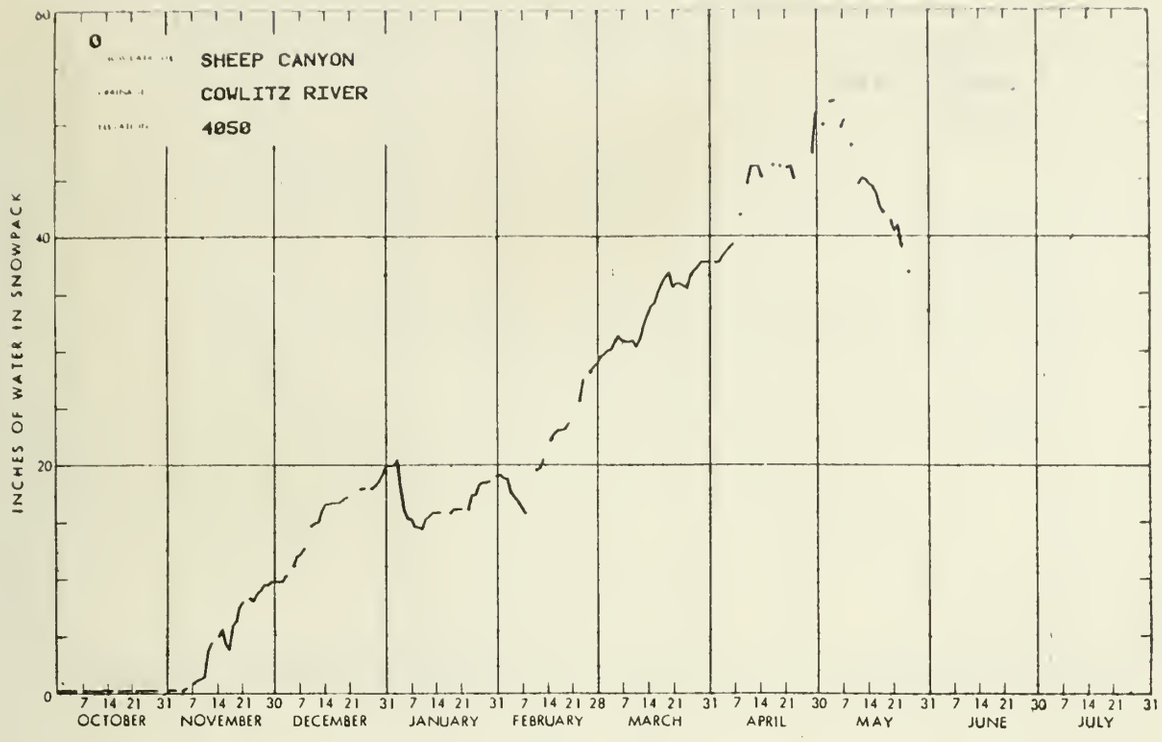
SHEEP CANYON
COWLITZ RIVER
4050
INCHES OF WATER IN SNOWPACK
0
20
40
60
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
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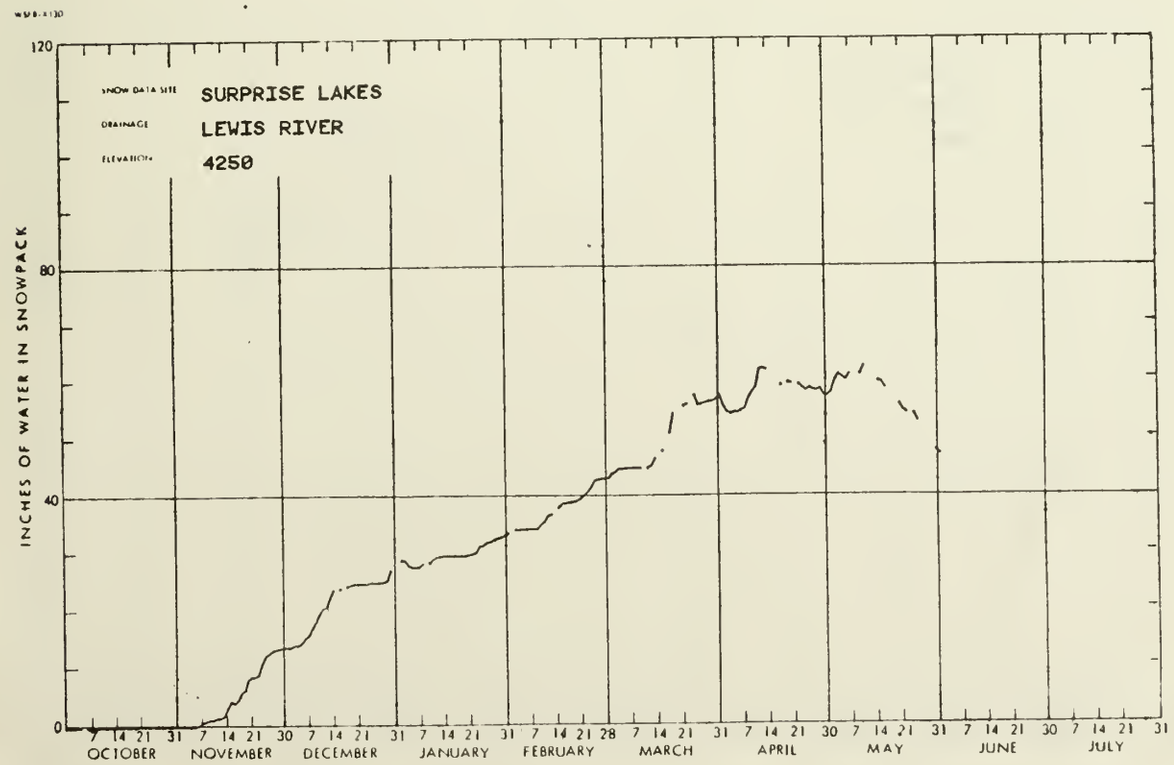
SURPRISE LAKES
LEWIS RIVER
4250
INCHES OF WATER IN SNOWPACK
0
40
80
120
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
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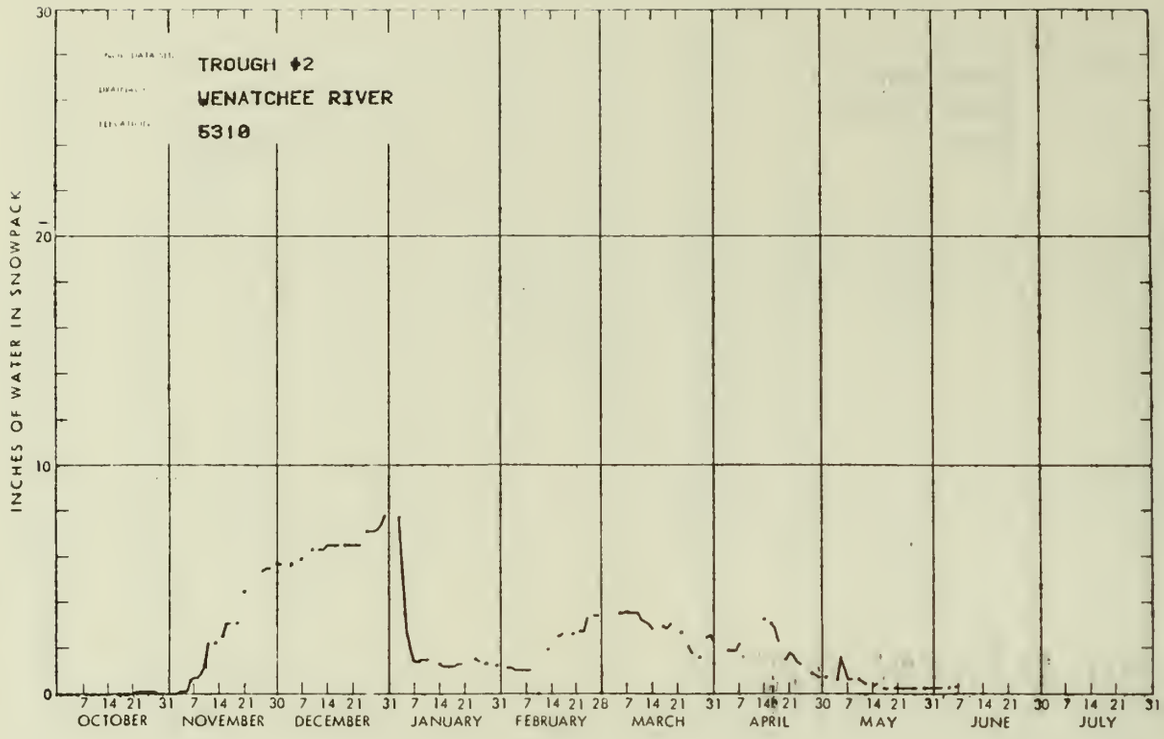
TROUGH #2
WENATCHEE RIVER
5310
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
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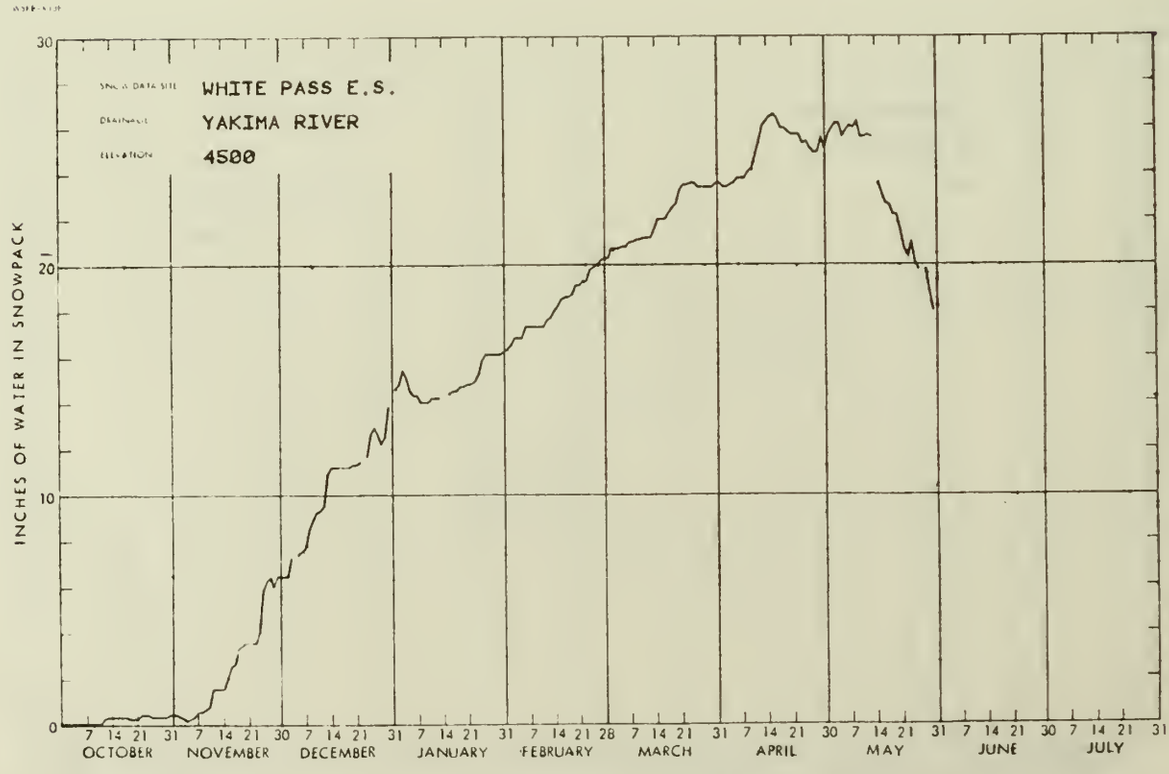
WHITE PASS E.S.
YAKIMA RIVER
4500
INCHES OF WATER IN SNOWPACK
0
10
20
30
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
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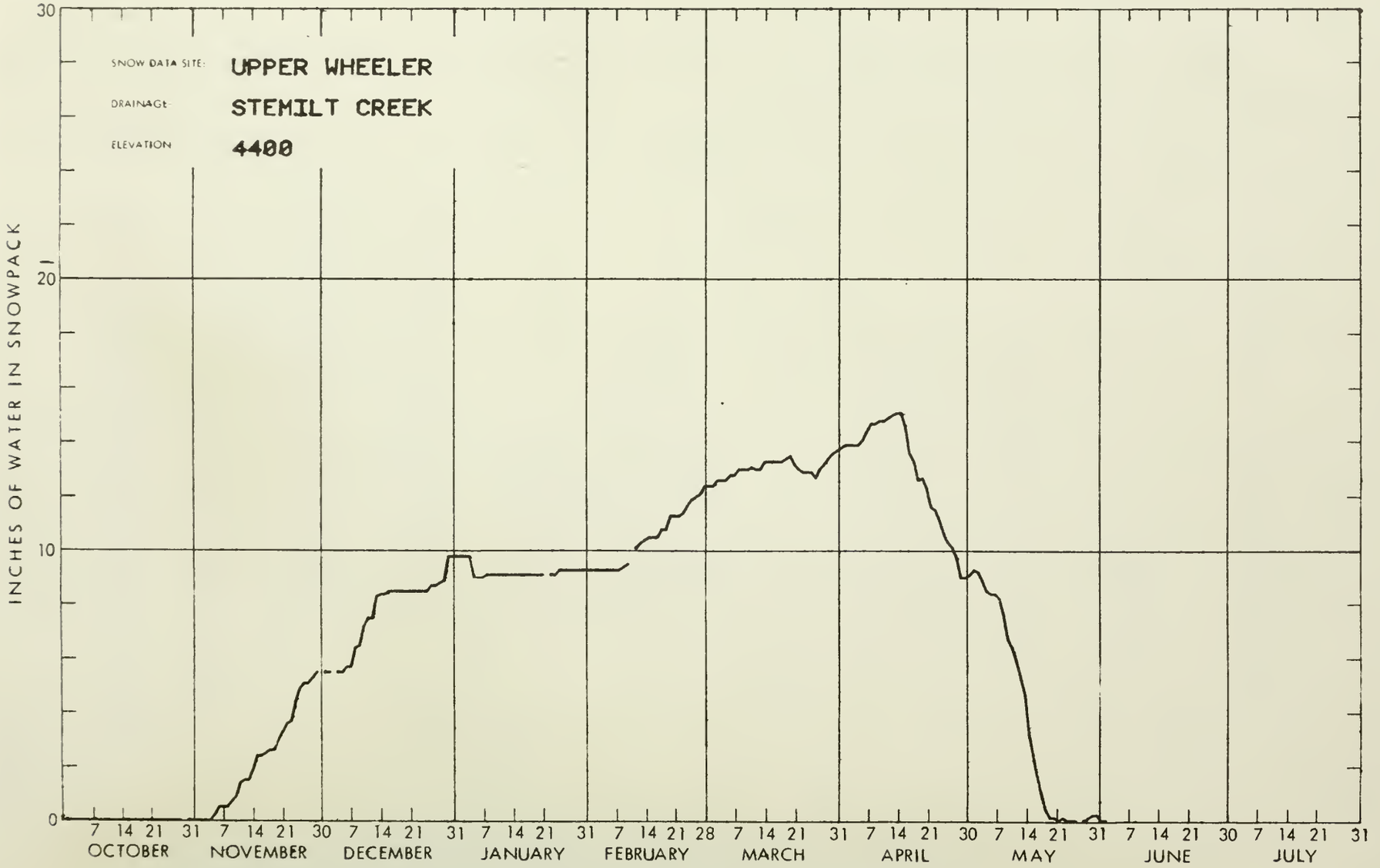
SNOW DATA SITE: UPPER WHEELER
DRAINAGE: STEMILT CREEK
ELEVATION: 4400
INCHES OF WATER IN SNOWPACK
30
20
10
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma
City of Seattle

*Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.*

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# COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation , navigation , mining and industry

*"The Conservation of Water begins with the Snow Survey"*

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